FCC Test Report

(PART 27)

Report No.:	RF171130C26-3
FCC ID:	HD5-660W
Test Model:	SOM660W
Received Date:	Nov. 30, 2017
Test Date:	Dec. 27, 2017 ~ Jan. 22, 2018
Issued Date:	Jan. 26, 2018
Applicant:	Honeywell International Inc.
Address:	9680 Old Bailes Road, Fort Mill, SC 29707 USA
Issued By:	Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch
Lab Address:	No. 47-2, 14th Ling, Chia Pau Vil., Lin Kou Dist., New Taipei City, Taiwan (R.O.C)
Test Location (1):	No. 19, Hwa Ya 2nd Rd, Wen Hwa Tsuen, Kwei Shan Hsiang, Taoyuan Hsien 333, Taiwan, R.O.C.
FCC Registration / Designation Number:	788550 / TW0003

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Release Control Record

Issue No.	Description	Date Issued
RF171130C26-3	Original Release	Jan. 26, 2018

1 Certificate of Conformity

Product:	HSOM660
Brand:	Honeywell
Test Model:	SOM660W
Sample Status:	Engineering Sample
Applicant:	Honeywell International Inc.
Test Date:	Dec. 27, 2017 ~ Jan. 22, 2018
Standards:	FCC Part 27, Subpart C, M

The above equipment has been tested by **Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch**, and found compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's RF characteristics under the conditions specified in this report.

Prepared by : Vera Huang , **Date:** Jan. 26, 2018

Vera Huang / Specialist

Approved by : , **Date:** Jan. 26, 2018

Dylan Chiou / Project Engineer

2 Summary of Test Results

Applied Standard: FCC Part 27 & Part 2			
FCC Clause	**Test Item**	**Result**	**Remarks**
2.1046 27.50(h)	Equivalent Isotropic Radiated Power	Pass	Meet the requirement of limit.
2.1055 27.54	Frequency Stability	Pass	Meet the requirement of limit.
2.1049	Occupied Bandwidth	Pass	Meet the requirement of limit.
--	Peak to Average Ratio	Pass	Meet the requirement of limit.
2.1051 27.53(l)	Out-of-Band Emissions Measurements	Pass	Meet the requirement of limit.
2.1051 27.53(m)	Conducted Spurious Emissions	Pass	Meet the requirement of limit.
2.1053 27.53(m)	Radiated Spurious Emissions	Pass	Meet the requirement of limit. Minimum passing margin is -17.88 dB at 42.96 MHz.

2.1 Measurement Uncertainty

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2:

Measurement	Frequency	Expended Uncertainty (k=2) (±)
Conducted Emissions at mains ports	150 kHz ~ 30 MHz	2.44 dB
Radiated Emissions up to 1 GHz	30 MHz ~ 200 MHz	2.93 dB
	200 MHz ~ 1000 MHz	2.95 dB
Radiated Emissions above 1 GHz	1 GHz ~ 18 GHz	2.26 dB
	18 GHz ~ 40 GHz	1.94 dB

2.2 Test Site and Instruments

Description & Manaufacturer	Model No.	Serial No.	Date of Calibration	Due Date of Calibration
Test Receiver Agilent	N9038A	MY51210203	Feb. 17, 2017	Feb. 16, 2018
Spectrum Analyzer Agilent	N9010A	MY52220314	Nov. 24, 2017	Nov. 23, 2018
Spectrum Analyzer ROHDE & SCHWARZ	FSU43	100115	Nov. 23, 2017	Nov. 22, 2018
BILOG Antenna SCHWARZBECK	VULB9168	9168-472	Dec. 06, 2017	Dec. 05, 2018
HORN Antenna SCHWARZBECK	BBHA 9120 D	9120D-969	Dec. 12, 2017	Dec. 11, 2018
Double Ridge Guide Horn Antenna EMCO	3115	5619	Nov. 30, 2017	Nov. 29, 2018
BILOG Antenna SCHWARZBECK	VULB 9168	9168-153	Dec. 06, 2017	Dec. 05, 2018
HORN Antenna SCHWARZBECK	BBHA 9170	9170-480	Dec. 01, 2017	Nov. 30, 2018
RF signal cable ETS-LINDGREN	5D-FB	Cable-CH1-01(RFC-SMS-100-SMS-120+RFC-SMS-100-SMS-400)	Jun. 23, 2017	Jun. 22, 2018
MXG Vector signal generator Agilent	N5182B	MY53050430	Oct. 24, 2017	Oct. 23, 2018
Loop Antenna	EM-6879	269	Aug. 11, 2017	Aug. 10, 2018
Preamplifier EMCI	EMC001340	980201	Nov. 01, 2017	Oct. 30, 2018
Bluetooth Tester	CBT	100946	Jul. 29, 2016	Jul. 28, 2018
Preamplifier EMCI	EMC 012645	980115	Oct. 20, 2017	Oct. 19, 2018
Preamplifier EMCI	EMC 184045	980116	Oct. 20, 2017	Oct. 19, 2018
Preamplifier EMCI	EMC 330H	980112	Oct. 13, 2017	Oct. 12, 2018
Power Meter Anritsu	ML2495A	1012010	Aug. 15, 2017	Aug. 14, 2018
Power Sensor Anritsu	MA2411B	1315050	Aug. 15, 2017	Aug. 14, 2018
RF Coaxial Cable HUBER+SUHNNER	EMC104-SM-SM-8000&3000	140811+170717	Oct. 20, 2017	Oct. 19, 2018

Description & Manaufacturer	Model No.	Serial No.	Date of Calibration	Due Date of Calibration
RF Coaxial Cable HUBER+SUHNNER	SUCOFLEX 104	EMC104-SM-SM-1000(140807)	Oct. 20, 2017	Oct. 19, 2018
RF Coaxial Cable Worken	8D-FB	Cable-Ch10-01	Oct. 20, 2017	Oct. 19, 2018
Software BV ADT	E3 6.120103	NA	NA	NA
Antenna Tower MF	MFA-440H	NA	NA	NA
Turn Table MF	MFT-201SS	NA	NA	NA
Antenna Tower &Turn Table Controller MF	MF-7802	NA	NA	NA

Note: 1. The calibration interval of the above test instruments is 12 / 24 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The test was performed in HwaYa Chamber 10.
3. The horn antenna and preamplifier (model: EMC 184045) are used only for the measurement of emission frequency above 1 GHz if tested.
4. The IC Site Registration No. is IC7450F-10.

3 General Information

3.1 General Description of EUT

Product	HSOM660	
Brand	Honeywell	
Test Model	SOM660W	
Status of EUT	Engineering Sample	
HW Version	V2.0	
HW P/N	22	
SW Version	HON.01.004	
SW P/N	351D	
Power Supply Rating	3.85 Vdc (battery)	
Modulation Type	QPSK, 16QAM, 64QAM	
Frequency Range	LTE Band 7 (Channel Bandwidth: 5 MHz)	2502.5 ~ 2567.5 MHz
	LTE Band 7 (Channel Bandwidth: 10 MHz)	2505 ~ 2565 MHz
	LTE Band 7 (Channel Bandwidth: 15 MHz)	2507.5 ~ 2562.5 MHz
	LTE Band 7 (Channel Bandwidth: 20 MHz)	2510 ~ 2560 MHz
	LTE Band 38 (Channel Bandwidth: 5 MHz)	2572.5 ~ 2617.5 MHz
	LTE Band 38 (Channel Bandwidth: 10 MHz)	2575.0 ~ 2615.0 MHz
	LTE Band 38 (Channel Bandwidth: 15 MHz)	2577.5 ~ 2612.5 MHz
	LTE Band 38 (Channel Bandwidth: 20 MHz)	2580.0 ~ 2610.0 MHz
	LTE Band 41 (Channel Bandwidth: 5 MHz)	2498.5 ~ 2687.5 MHz
	LTE Band 41 (Channel Bandwidth: 10 MHz)	2501.0 ~ 2685.0 MHz
	LTE Band 41 (Channel Bandwidth: 15 MHz)	2503.5 ~ 2682.5 MHz
	LTE Band 41 (Channel Bandwidth: 20 MHz)	2506.0 ~ 2680.0 MHz
Max. EIRP Power	LTE Band 7 (Channel Bandwidth: 5 MHz)	162.55 mW
	LTE Band 7 (Channel Bandwidth: 10 MHz)	162.55 mW
	LTE Band 7 (Channel Bandwidth: 15 MHz)	203.24 mW
	LTE Band 7 (Channel Bandwidth: 20 MHz)	209.41 mW
	LTE Band 38 (Channel Bandwidth: 5 MHz)	394.46 mW
	LTE Band 38 (Channel Bandwidth: 10 MHz)	473.15 mW
	LTE Band 38 (Channel Bandwidth: 15 MHz)	483.06 mW
	LTE Band 38 (Channel Bandwidth: 20 MHz)	497.74 mW
	LTE Band 41 (Channel Bandwidth: 5 MHz)	337.29 mW
	LTE Band 41 (Channel Bandwidth: 10 MHz)	408.32 mW
	LTE Band 41 (Channel Bandwidth: 15 MHz)	432.51 mW
	LTE Band 41 (Channel Bandwidth: 20 MHz)	443.61 mW

Emission Designator	LTE Band 7 (Channel Bandwidth: 5 MHz)	4M50G7D
	LTE Band 7 (Channel Bandwidth: 10 MHz)	8M98G7D
	LTE Band 7 (Channel Bandwidth: 15 MHz)	13M5G7D
	LTE Band 7 (Channel Bandwidth: 20 MHz)	17M9W7D
	LTE Band 38 (Channel Bandwidth: 5 MHz)	4M50W7D
	LTE Band 38 (Channel Bandwidth: 10 MHz)	8M97W7D
	LTE Band 38 (Channel Bandwidth: 15 MHz)	13M4G7D
	LTE Band 38 (Channel Bandwidth: 20 MHz)	17M9W7D
	LTE Band 41 (Channel Bandwidth: 5 MHz)	4M49W7D
	LTE Band 41 (Channel Bandwidth: 10 MHz)	8M97W7D
	LTE Band 41 (Channel Bandwidth: 15 MHz)	13M4G7D
	LTE Band 41 (Channel Bandwidth: 20 MHz)	17M9W7D
Antenna Type	PIFA Antenna	
Accessory Device	Refer to Note as below	
Data Cable Supplied	N/A	

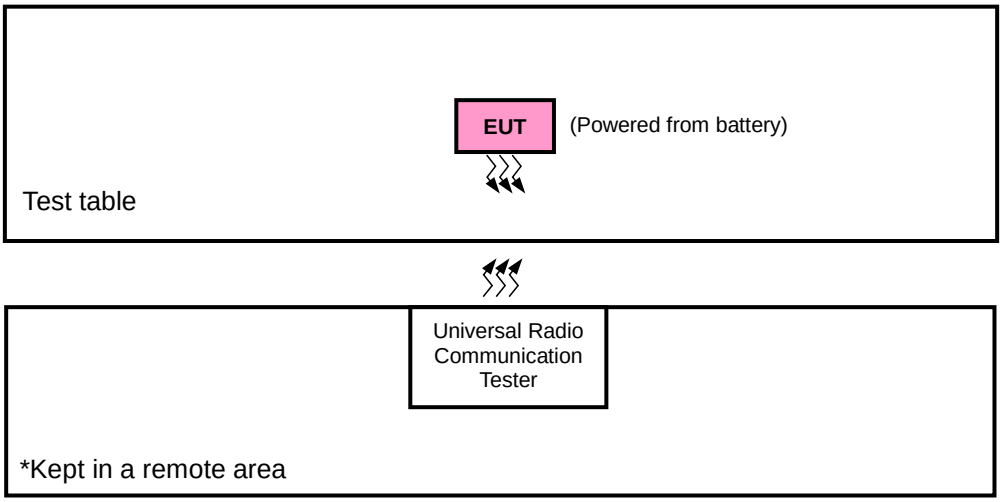
Note:

1. The EUT has been tested with following support unit.

Product	Brand	Model	Description
Battery	Inventus Power Inc.	CW-BAT	3.85 Vdc, 5800 mAh

2. The above EUT information is declared by manufacturer and for more detailed features description, please refer to the manufacturer's specifications or user's manual.

3.2 Configuration of System under Test



3.2.1 Description of Support Units

The EUT has been tested as an independent unit together with other necessary accessories or support units.

3.3 Test Mode Applicability and Tested Channel Detail

Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates, XYZ axis, and antenna ports.
The worst case was found when positioned as the table below. Following channel(s) was (were) selected for the final test as listed below:

Band	EIRP	Radiated Emission
LTE Band 7	X-plane	Z-axis
LTE Band 38	X-plane	Z-axis
LTE Band 41	X-plane	Z-axis

LTE Band 7

EUT Configure Mode	Test Item	Available Channel	Tested Channel	Channel Bandwidth	Modulation	Mode
-	EIRP	20775 to 21425	20775, 21100, 21425	5 MHz	QPSK, 16QAM, 64QAM	1 RB / 0 RB Offset
		20800 to 21400	20800, 21100, 21400	10 MHz	QPSK, 16QAM, 64QAM	1 RB / 0 RB Offset
		20825 to 21375	20825, 21100, 21375	15 MHz	QPSK, 16QAM, 64QAM	1 RB / 0 RB Offset
		20850 to 21350	20850, 21100 21350	20 MHz	QPSK, 16QAM, 64QAM	1 RB / 0 RB Offset
-	Frequency Stability	20775 to 21425	20775, 21425	5 MHz	QPSK	1 RB / 0 RB Offset
		20800 to 21400	20800, 21400	10 MHz	QPSK	1 RB / 0 RB Offset
		20825 to 21375	20825, 21375	15 MHz	QPSK	1 RB / 0 RB Offset
		20850 to 21350	20850, 21350	20 MHz	QPSK	1 RB / 0 RB Offset
-	Occupied Bandwidth	20775 to 21425	20775, 21100, 21425	5 MHz	QPSK, 16QAM, 64QAM	25 RB / 0 RB Offset
		20800 to 21400	20800, 21100, 21400	10 MHz	QPSK, 16QAM, 64QAM	50 RB / 0 RB Offset
		20825 to 21375	20825, 21100, 21375	15 MHz	QPSK, 16QAM, 64QAM	75 RB / 0 RB Offset
		20850 to 21350	20850, 21100 21350	20 MHz	QPSK, 16QAM, 64QAM	100 RB / 0 RB Offset
-	Peak to Average Ratio	20775 to 21425	20775, 21100, 21425	5 MHz	QPSK, 16QAM, 64QAM	1 RB / 0 RB Offset
		20800 to 21400	20800, 21100, 21400	10 MHz	QPSK, 16QAM, 64QAM	1 RB / 0 RB Offset
		20825 to 21375	20825, 21100, 21375	15 MHz	QPSK, 16QAM, 64QAM	1 RB / 0 RB Offset
		20850 to 21350	20850, 21100 21350	20 MHz	QPSK, 16QAM, 64QAM	1 RB / 0 RB Offset
-	Out-of-Band Emissions	20775 to 21425	20775, 21425	5 MHz	QPSK, 16QAM	25 RB / 0 RB Offset
		20800 to 21400	20800, 21400	10 MHz	QPSK, 16QAM	50 RB / 0 RB Offset
		20825 to 21375	20825, 21375	15 MHz	QPSK, 16QAM	75 RB / 0 RB Offset
		20850 to 21350	20850, 21350	20 MHz	QPSK, 16QAM	100 RB / 0 RB Offset
-	Conducted Emission	20775 to 21425	20775, 21100, 21425	5 MHz	QPSK	1 RB / 0 RB Offset
		20800 to 21400	20800, 21100, 21400	10 MHz	QPSK	1 RB / 0 RB Offset
		20825 to 21375	20825, 21100, 21375	15 MHz	QPSK	1 RB / 0 RB Offset
		20850 to 21350	20850, 21100 21350	20 MHz	QPSK	1 RB / 0 RB Offset
-	Radiated Emission	20850 to 21350	20850, 21100 21350	20 MHz	QPSK	1 RB / 0 RB Offset

Note: This device was tested under all bandwidths, RB configurations and modulations. The worst case was found in QPSK modulation.

LTE Band 38

EUT Configure Mode	Test Item	Available Channel	Tested Channel	Channel Bandwidth	Modulation	Mode
-	EIRP	37775 to 38225	37775, 38000, 38225	5 MHz	QPSK, 16QAM, 64QAM	1 RB / 0 RB Offset
		37800 to 38200	37800, 38000, 38200	10 MHz	QPSK, 16QAM, 64QAM	1 RB / 0 RB Offset
		37825 to 38175	37825, 38000, 38175	15 MHz	QPSK, 16QAM, 64QAM	1 RB / 0 RB Offset
		37850 to 38150	37850, 38000, 38150	20 MHz	QPSK, 16QAM, 64QAM	1 RB / 0 RB Offset
-	Frequency Stability	37775 to 38225	37775, 38225	5 MHz	QPSK	1 RB / 0 RB Offset
		37800 to 38200	37800, 38200	10 MHz	QPSK	1 RB / 0 RB Offset
		37825 to 38175	37825, 38175	15 MHz	QPSK	1 RB / 0 RB Offset
		37850 to 38150	37850, 38150	20 MHz	QPSK	1 RB / 0 RB Offset
-	Occupied Bandwidth	37775 to 38225	37775, 38000, 38225	5 MHz	QPSK, 16QAM, 64QAM	25 RB / 0 RB Offset
		37800 to 38200	37800, 38000, 38200	10 MHz	QPSK, 16QAM, 64QAM	50 RB / 0 RB Offset
		37825 to 38175	37825, 38000, 38175	15 MHz	QPSK, 16QAM, 64QAM	75 RB / 0 RB Offset
		37850 to 38150	37850, 38000, 38150	20 MHz	QPSK, 16QAM, 64QAM	100 RB / 0 RB Offset
-	Peak to Average Ratio	37775 to 38225	37775, 38000, 38225	5 MHz	QPSK, 16QAM, 64QAM	1 RB / 0 RB Offset
		37800 to 38200	37800, 38000, 38200	10 MHz	QPSK, 16QAM, 64QAM	1 RB / 0 RB Offset
		37825 to 38175	37825, 38000, 38175	15 MHz	QPSK, 16QAM, 64QAM	1 RB / 0 RB Offset
		37850 to 38150	37850, 38000, 38150	20 MHz	QPSK, 16QAM, 64QAM	1 RB / 0 RB Offset
-	Out-of-Band Emissions	37775 to 38225	37775, 38225	5 MHz	QPSK, 16QAM	25 RB / 0 RB Offset
		37800 to 38200	37800, 38200	10 MHz	QPSK, 16QAM	50 RB / 0 RB Offset
		37825 to 38175	37825, 38175	15 MHz	QPSK, 16QAM	75 RB / 0 RB Offset
		37850 to 38150	37850, 38150	20 MHz	QPSK, 16QAM	100 RB / 0 RB Offset
-	Conducted Emission	37775 to 38225	37775, 38000, 38225	5 MHz	QPSK	1 RB / 0 RB Offset
		37800 to 38200	37800, 38000, 38200	10 MHz	QPSK	1 RB / 0 RB Offset
		37825 to 38175	37825, 38000, 38175	15 MHz	QPSK	1 RB / 0 RB Offset
		37850 to 38150	37850, 38000, 38150	20 MHz	QPSK	1 RB / 0 RB Offset
-	Radiated Emission	37850 to 38150	37850, 38000, 38150	20 MHz	QPSK	1 RB / 0 RB Offset

Note: This device was tested under all bandwidths, RB configurations and modulations. The worst case was found in QPSK modulation.

LTE Band 41

EUT Configure Mode	Test Item	Available Channel	Tested Channel	Channel Bandwidth	Modulation	Mode
-	EIRP	39675 to 41565	39675, 40620, 41565	5 MHz	QPSK, 16QAM, 64QAM	1 RB / 0 RB Offset
		39700 to 41540	39700, 40620, 41540	10 MHz	QPSK, 16QAM, 64QAM	1 RB / 0 RB Offset
		39725 to 41515	39725, 40620, 41515	15 MHz	QPSK, 16QAM, 64QAM	1 RB / 0 RB Offset
		39750 to 41490	39750, 40620, 41490	20 MHz	QPSK, 16QAM, 64QAM	1 RB / 0 RB Offset
-	Frequency Stability	39675 to 41565	39675, 41565	5 MHz	QPSK	1 RB / 0 RB Offset
		39700 to 41540	39700, 41540	10 MHz	QPSK	1 RB / 0 RB Offset
		39725 to 41515	39725, 41515	15 MHz	QPSK	1 RB / 0 RB Offset
		39750 to 41490	39750, 41490	20 MHz	QPSK	1 RB / 0 RB Offset
-	Occupied Bandwidth	39675 to 41565	39675, 40620, 41565	5 MHz	QPSK, 16QAM, 64QAM	25 RB / 0 RB Offset
		39700 to 41540	39700, 40620, 41540	10 MHz	QPSK, 16QAM, 64QAM	50 RB / 0 RB Offset
		39725 to 41515	39725, 40620, 41515	15 MHz	QPSK, 16QAM, 64QAM	75 RB / 0 RB Offset
		39750 to 41490	39750, 40620, 41490	20 MHz	QPSK, 16QAM, 64QAM	100 RB / 0 RB Offset
-	Peak to Average Ratio	39675 to 41565	39675, 40620, 41565	5 MHz	QPSK, 16QAM, 64QAM	1 RB / 0 RB Offset
		39700 to 41540	39700, 40620, 41540	10 MHz	QPSK, 16QAM, 64QAM	1 RB / 0 RB Offset
		39725 to 41515	39725, 40620, 41515	15 MHz	QPSK, 16QAM, 64QAM	1 RB / 0 RB Offset
		39750 to 41490	39750, 40620, 41490	20 MHz	QPSK, 16QAM, 64QAM	1 RB / 0 RB Offset
-	Out-of-Band Emissions	39675 to 41565	39675, 41565	5 MHz	QPSK, 16QAM	25 RB / 0 RB Offset
		39700 to 41540	39700, 41540	10 MHz	QPSK, 16QAM	50 RB / 0 RB Offset
		39725 to 41515	39725, 41515	15 MHz	QPSK, 16QAM	75 RB / 0 RB Offset
		39750 to 41490	39750, 41490	20 MHz	QPSK, 16QAM	100 RB / 0 RB Offset
-	Conducted Emission	39675 to 41565	39675, 40620, 41565	5 MHz	QPSK	1 RB / 0 RB Offset
		39700 to 41540	39700, 40620, 41540	10 MHz	QPSK	1 RB / 0 RB Offset
		39725 to 41515	39725, 40620, 41515	15 MHz	QPSK	1 RB / 0 RB Offset
		39750 to 41490	39750, 40620, 41490	20 MHz	QPSK	1 RB / 0 RB Offset
-	Radiated Emission	39750 to 41490	39750, 40620, 41490	20 MHz	QPSK	1 RB / 0 RB Offset

Note: This device was tested under all bandwidths, RB configurations and modulations. The worst case was found in QPSK modulation.

Test Condition:

Test Item	Environmental Conditions	Input Power	Tested By
EIRP	25 deg. C, 65 % RH	3.85 Vdc	Jisyong Wang / Getaz Yang
Frequency Stability	25 deg. C, 65 % RH	3.85 Vdc	Wayne Lin
Occupied Bandwidth	25 deg. C, 65 % RH	3.85 Vdc	Wayne Lin
Out-of-Band Emissions	25 deg. C, 65 % RH	3.85 Vdc	Wayne Lin
Peak to Average Ratio	25 deg. C, 65 % RH	3.85 Vdc	Wayne Lin
Conducted Emission	25 deg. C, 65 % RH	3.85 Vdc	Wayne Lin
Radiated Emission	25 deg. C, 65 % RH	3.85 Vdc	Jisyong Wang / Getaz Yang

3.4 EUT Operating Conditions

The EUT makes a call to the communication simulator. The communication simulator station system controlled a EUT to export maximum output power under transmission mode and specific channel frequency

3.5 General Description of Applied Standards

The EUT is a RF Product. According to the specifications of the manufacturer, it must comply with the requirements of the following standards:

FCC 47 CFR Part 2
FCC 47 CFR Part 27
KDB 971168 D01 Power Meas License Digital Systems v02r02
ANSI/TIA/EIA-603-E 2016
ANSI 63.26-2015

Note: All test items have been performed and recorded as per the above standards.

4 Test Types and Results

4.1 Output Power Measurement

4.1.1 Limits of Output Power Measurement

The radiated peak output power shall be according to the specific rule Part 27.50(h)(2) that “User stations are limited to 2 watts” and 27.50(i) specific that “Peak transmit power must be measure over any interval of continuous transmission using instrumentation calibration in terms of rms-equivalent voltage.”

4.1.2 Test Procedures

EIRP Measurement:

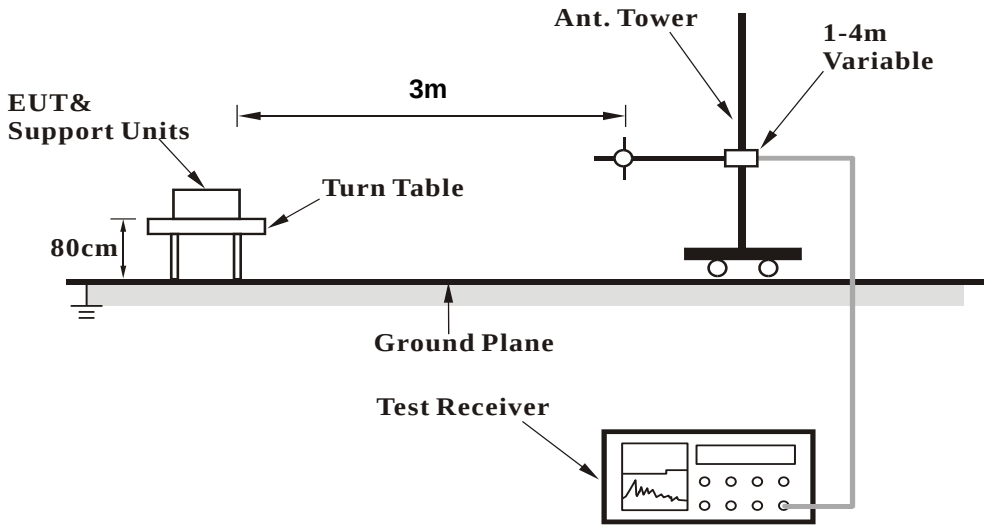
a. All measurements were done at low, middle and high operational frequency range. RBW and VBW is 10 MHz for LTE mode.
b. Substitution method is used for E.I.R.P measurement. In the semi-anechoic chamber, EUT placed on the 0.8 m (below or equal 1 GHz) and/or 1.5 m (above 1 GHz) height of Turn Table, rotated the table around 360 degrees to search the maximum radiation power and receiver antenna shall be rotated vertical and horizontal polarization and moved height from 1 m to 4 m to find the maximum polar radiated power. The “Read Value” is the spectrum reading the maximum power value.
c. The substitution horn antenna is substituted for EUT at the same position and signals generator export the CW signal to the substitution antenna via a tx cable. Rotated the Turn Table and moved receiving antenna to find the maximum radiation power. Adjust output power level of S.G to get a Value of spectrum reading equal to “Read Value“ of step b. Record the power level of S.G.
d. EIRP = Output power level of S.G – TX cable loss + Antenna gain of substitution horn.

Conducted Power Measurement:

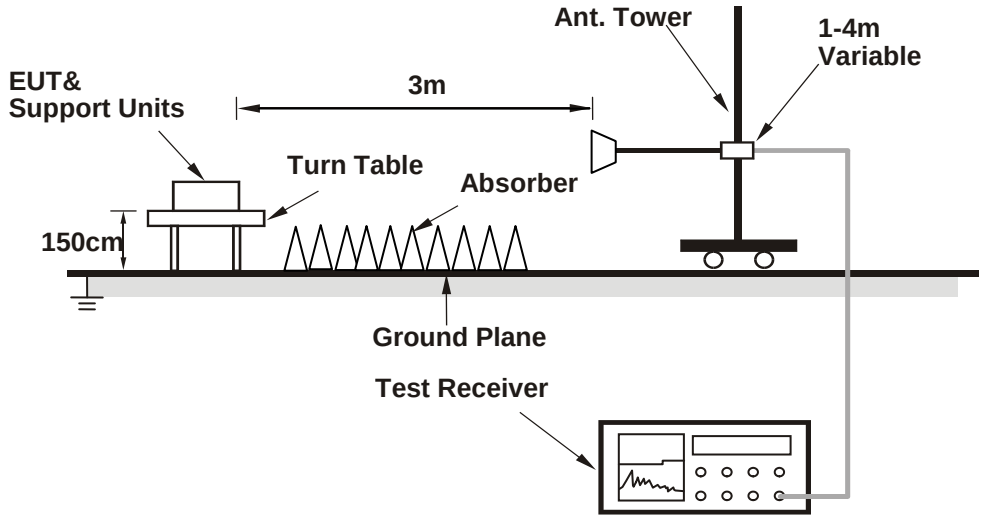
a. The EUT was set up for the maximum power with LTE link data modulation and link up with simulator.
b. Set the EUT to transmit under low, middle and high channel and record the power level shown on simulator.

4.1.3 Test Setup

EIRP / ERP Measurement:
<Radiated Emission below or equal 1 GHz>



<Radiated Emission above 1 GHz>



For the actual test configuration, please refer to the attached file (Test Setup Photo).

Conducted Power Measurement:

4.1.4 Test Results

Conducted Output Power (dBm)

LTE Band 7																
BW	MCS Index	RB Size	RB Offset	Low	Mid	High	3GPP MPR (dB)	BW	MCS Index	RB Size	RB Offset	Low	Mid	High	3GPP MPR (dB)
		Channel		20850	21100	21350				Channel		20825	21100	21375	
		Frequency (MHz)		2510.0	2535.0	2560.0				Frequency (MHz)		2507.5	2535.0	2562.5	
20M	QPSK	1	0	23.33	23.32	23.48	0	15M	QPSK	1	0	23.26	23.25	23.41	0
		1	50	23.66	23.56	23.72	0			1	37	23.59	23.49	23.65	0
		1	99	23.70	23.60	23.76	0			1	74	23.63	23.53	23.69	0
		50	0	22.63	22.53	22.69	1			36	0	22.56	22.46	22.62	1
		50	25	22.73	22.63	22.79	1			36	19	22.66	22.56	22.72	1
		50	50	22.69	22.59	22.75	1			36	39	22.62	22.52	22.68	1
		100	0	22.67	22.57	22.73	1			75	0	22.60	22.50	22.66	1
	16QAM	1	0	22.32	22.31	22.47	1		16QAM	1	0	22.25	22.24	22.40	1
		1	50	22.65	22.55	22.71	1			1	37	22.58	22.48	22.64	1
		1	99	22.69	22.59	22.75	1			1	74	22.62	22.52	22.68	1
		50	0	21.62	21.52	21.68	2			36	0	21.55	21.45	21.61	2
		50	25	21.72	21.62	21.78	2			36	19	21.65	21.55	21.71	2
		50	50	21.68	21.58	21.74	2			36	39	21.61	21.51	21.67	2
		100	0	21.66	21.56	21.72	2			75	0	21.59	21.49	21.65	2
	64QAM	1	0	21.28	21.27	21.43	2		64QAM	1	0	21.21	21.20	21.36	2
		1	50	21.61	21.51	21.67	2			1	37	21.54	21.44	21.60	2
		1	99	21.65	21.55	21.71	2			1	74	21.58	21.48	21.64	2
		50	0	20.58	20.48	20.64	3			36	0	20.51	20.41	20.57	3
		50	25	20.68	20.58	20.74	3			36	19	20.61	20.51	20.67	3
		50	50	20.64	20.54	20.70	3			36	39	20.57	20.47	20.63	3
		100	0	20.62	20.52	20.68	3			75	0	20.55	20.45	20.61	3
BW	MCS Index	RB Size	RB Offset	Low	Mid	High	3GPP MPR (dB)	BW	MCS Index	RB Size	RB Offset	Low	Mid	High	3GPP MPR (dB)
		Channel		20800	21100	21400				Channel		20775	21100	21425	
		Frequency (MHz)		2505.0	2535.0	2565.0				Frequency (MHz)		2502.5	2535.0	2567.5	
10M	QPSK	1	0	23.16	23.15	23.31	0	5M	QPSK	1	0	23.04	23.03	23.19	0
		1	24	23.49	23.39	23.55	0			1	12	23.37	23.27	23.43	0
		1	49	23.53	23.43	23.59	0			1	24	23.41	23.31	23.47	0
		25	0	22.46	22.36	22.52	1			12	0	22.34	22.24	22.40	1
		25	12	22.56	22.46	22.62	1			12	6	22.44	22.34	22.50	1
		25	25	22.52	22.42	22.58	1			12	13	22.40	22.30	22.46	1
		50	0	22.50	22.40	22.56	1			25	0	22.38	22.28	22.44	1
	16QAM	1	0	22.15	22.14	22.30	1		16QAM	1	0	22.03	22.02	22.18	1
		1	24	22.48	22.38	22.54	1			1	12	22.36	22.26	22.42	1
		1	49	22.52	22.42	22.58	1			1	24	22.40	22.30	22.46	1
		25	0	21.45	21.35	21.51	2			12	0	21.33	21.23	21.39	2
		25	12	21.55	21.45	21.61	2			12	6	21.43	21.33	21.49	2
		25	25	21.51	21.41	21.57	2			12	13	21.39	21.29	21.45	2
		50	0	21.49	21.39	21.55	2			25	0	21.37	21.27	21.43	2
	64QAM	1	0	21.11	21.10	21.26	2		64QAM	1	0	20.99	20.98	21.14	2
		1	24	21.44	21.34	21.50	2			1	12	21.32	21.22	21.38	2
		1	49	21.48	21.38	21.54	2			1	24	21.36	21.26	21.42	2
		25	0	20.41	20.31	20.47	3			12	0	20.29	20.19	20.35	3
		25	12	20.51	20.41	20.57	3			12	6	20.39	20.29	20.45	3
		25	25	20.47	20.37	20.53	3			12	13	20.35	20.25	20.41	3
		50	0	20.45	20.35	20.51	3			25	0	20.33	20.23	20.39	3

LTE Band 38

BW	MCS Index	RB Size	RB Offset	Low	Mid	High	3GPP MPR (dB)	BW	MCS Index	RB Size	RB Offset	Low	Mid	High	3GPP MPR (dB)
		Channel		37850	38000	38150				Channel		37825	38000	38175	
		Frequency (MHz)		2580.0	2595.0	2610.0				Frequency (MHz)		2577.5	2595.0	2612.5	
20M	QPSK	1	0	23.41	23.57	23.59	0	15M	QPSK	1	0	23.29	23.45	23.47	0
		1	50	23.65	23.81	23.83	0			1	37	23.53	23.69	23.71	0
		1	99	23.59	23.75	23.77	0			1	74	23.47	23.63	23.65	0
		50	0	22.71	22.87	22.89	1			36	0	22.59	22.75	22.77	1
		50	25	22.74	22.90	22.92	1			36	19	22.62	22.78	22.80	1
		50	50	22.72	22.88	22.90	1			36	39	22.60	22.76	22.78	1
		100	0	22.73	22.89	22.91	1			75	0	22.61	22.77	22.79	1
	16QAM	1	0	22.36	22.52	22.54	1		16QAM	1	0	22.24	22.40	22.42	1
		1	50	22.60	22.76	22.78	1			1	37	22.48	22.64	22.66	1
		1	99	22.54	22.70	22.72	1			1	74	22.42	22.58	22.60	1
		50	0	21.66	21.82	21.84	2			36	0	21.54	21.70	21.72	2
		50	25	21.69	21.85	21.87	2			36	19	21.57	21.73	21.75	2
		50	50	21.67	21.83	21.85	2			36	39	21.55	21.71	21.73	2
		100	0	21.68	21.84	21.86	2			75	0	21.56	21.72	21.74	2
	64QAM	1	0	21.32	21.48	21.50	2		64QAM	1	0	21.20	21.36	21.38	2
		1	50	21.56	21.72	21.74	2			1	37	21.44	21.60	21.62	2
		1	99	21.50	21.66	21.68	2			1	74	21.38	21.54	21.56	2
		50	0	20.62	20.78	20.80	3			36	0	20.50	20.66	20.68	3
		50	25	20.65	20.81	20.83	3			36	19	20.53	20.69	20.71	3
		50	50	20.63	20.79	20.81	3			36	39	20.51	20.67	20.69	3
		100	0	20.64	20.80	20.82	3			75	0	20.52	20.68	20.70	3

BW	MCS Index	RB Size	RB Offset	Low	Mid	High	3GPP MPR (dB)	BW	MCS Index	RB Size	RB Offset	Low	Mid	High	3GPP MPR (dB)
		Channel		37800	38000	38200				Channel		37775	38000	38225	
		Frequency (MHz)		2575.0	2595.0	2615.0				Frequency (MHz)		2572.5	2595.0	2617.5	
10M	QPSK	1	0	23.21	23.37	23.39	0	5M	QPSK	1	0	23.11	23.27	23.29	0
		1	24	23.45	23.61	23.63	0			1	12	23.35	23.51	23.53	0
		1	49	23.39	23.55	23.57	0			1	24	23.29	23.45	23.47	0
		25	0	22.51	22.67	22.69	1			12	0	22.41	22.57	22.59	1
		25	12	22.54	22.70	22.72	1			12	6	22.44	22.60	22.62	1
		25	25	22.52	22.68	22.70	1			12	13	22.42	22.58	22.60	1
		50	0	22.53	22.69	22.71	1			25	0	22.43	22.59	22.61	1
	16QAM	1	0	22.16	22.32	22.34	1		16QAM	1	0	22.06	22.22	22.24	1
		1	24	22.40	22.56	22.58	1			1	12	22.30	22.46	22.48	1
		1	49	22.34	22.50	22.52	1			1	24	22.24	22.40	22.42	1
		25	0	21.46	21.62	21.64	2			12	0	21.36	21.52	21.54	2
		25	12	21.49	21.65	21.67	2			12	6	21.39	21.55	21.57	2
		25	25	21.47	21.63	21.65	2			12	13	21.37	21.53	21.55	2
		50	0	21.48	21.64	21.66	2			25	0	21.38	21.54	21.56	2
	64QAM	1	0	21.12	21.28	21.30	2		64QAM	1	0	21.02	21.18	21.20	2
		1	24	21.36	21.52	21.54	2			1	12	21.26	21.42	21.44	2
		1	49	21.30	21.46	21.48	2			1	24	21.20	21.36	21.38	2
		25	0	20.42	20.58	20.60	3			12	0	20.32	20.48	20.50	3
		25	12	20.45	20.61	20.63	3			12	6	20.35	20.51	20.53	3
		25	25	20.43	20.59	20.61	3			12	13	20.33	20.49	20.51	3
		50	0	20.44	20.60	20.62	3			25	0	20.34	20.50	20.52	3

LTE Band 41

BW	MCS Index	RB Size	RB Offset	Low	Mid	High	3GPP MPR (dB)	BW	MCS Index	RB Size	RB Offset	Low	Mid	High	3GPP MPR (dB)
		Channel		39750	40620	41490				Channel		39725	40620	41515	
		Frequency (MHz)		2506.0	2593.0	2680.0				Frequency (MHz)		2503.5	2593.0	2682.5	
20M	QPSK	1	0	23.66	23.67	23.44	0	15M	QPSK	1	0	23.54	23.55	23.32	0
		1	50	23.77	23.78	23.55	0			1	37	23.65	23.66	23.43	0
		1	99	23.80	23.81	23.58	0			1	74	23.68	23.69	23.46	0
		50	0	22.79	22.80	22.57	1			36	0	22.67	22.68	22.45	1
		50	25	22.88	22.89	22.66	1			36	19	22.76	22.77	22.54	1
		50	50	22.83	22.84	22.61	1			36	39	22.71	22.72	22.49	1
		100	0	22.84	22.85	22.62	1			75	0	22.72	22.73	22.50	1
	16QAM	1	0	22.61	22.62	22.39	1		16QAM	1	0	22.49	22.50	22.27	1
		1	50	22.72	22.73	22.50	1			1	37	22.60	22.61	22.38	1
		1	99	22.75	22.76	22.53	1			1	74	22.63	22.64	22.41	1
		50	0	21.74	21.75	21.52	2			36	0	21.62	21.63	21.40	2
		50	25	21.83	21.84	21.61	2			36	19	21.71	21.72	21.49	2
		50	50	21.78	21.79	21.56	2			36	39	21.66	21.67	21.44	2
		100	0	21.79	21.80	21.57	2			75	0	21.67	21.68	21.45	2
	64QAM	1	0	21.57	21.58	21.35	2		64QAM	1	0	21.45	21.46	21.23	2
		1	50	21.68	21.69	21.46	2			1	37	21.56	21.57	21.34	2
		1	99	21.71	21.72	21.49	2			1	74	21.59	21.60	21.37	2
		50	0	20.70	20.71	20.48	3			36	0	20.58	20.59	20.36	3
		50	25	20.79	20.80	20.57	3			36	19	20.67	20.68	20.45	3
		50	50	20.74	20.75	20.52	3			36	39	20.62	20.63	20.40	3
		100	0	20.75	20.76	20.53	3			75	0	20.63	20.64	20.41	3
BW	MCS Index	RB Size	RB Offset	Low	Mid	High	3GPP MPR (dB)	BW	MCS Index	RB Size	RB Offset	Low	Mid	High	3GPP MPR (dB)
		Channel		39700	40620	41540				Channel		39675	40620	41565	
		Frequency (MHz)		2501.0	2593.0	2685.0				Frequency (MHz)		2498.5	2593.0	2687.5	
10M	QPSK	1	0	23.46	23.47	23.24	0	5M	QPSK	1	0	23.36	23.37	23.14	0
		1	24	23.57	23.58	23.35	0			1	12	23.47	23.48	23.25	0
		1	49	23.60	23.61	23.38	0			1	24	23.50	23.51	23.28	0
		25	0	22.59	22.60	22.37	1			12	0	22.49	22.50	22.27	1
		25	12	22.68	22.69	22.46	1			12	6	22.58	22.59	22.36	1
		25	25	22.63	22.64	22.41	1			12	13	22.53	22.54	22.31	1
		50	0	22.64	22.65	22.42	1			25	0	22.54	22.55	22.32	1
	16QAM	1	0	22.41	22.42	22.19	1		16QAM	1	0	22.31	22.32	22.09	1
		1	24	22.52	22.53	22.30	1			1	12	22.42	22.43	22.20	1
		1	49	22.55	22.56	22.33	1			1	24	22.45	22.46	22.23	1
		25	0	21.54	21.55	21.32	2			12	0	21.44	21.45	21.22	2
		25	12	21.63	21.64	21.41	2			12	6	21.53	21.54	21.31	2
		25	25	21.58	21.59	21.36	2			12	13	21.48	21.49	21.26	2
		50	0	21.59	21.60	21.37	2			25	0	21.49	21.50	21.27	2
	64QAM	1	0	21.37	21.38	21.15	2		64QAM	1	0	21.27	21.28	21.05	2
		1	24	21.48	21.49	21.26	2			1	12	21.38	21.39	21.16	2
		1	49	21.51	21.52	21.29	2			1	24	21.41	21.42	21.19	2
		25	0	20.50	20.51	20.28	3			12	0	20.40	20.41	20.18	3
		25	12	20.59	20.60	20.37	3			12	6	20.49	20.50	20.27	3
		25	25	20.54	20.55	20.32	3			12	13	20.44	20.45	20.22	3
		50	0	20.55	20.56	20.33	3			25	0	20.45	20.46	20.23	3

EIRP Power (dBm)

LTE Band 7							
Channel Bandwidth: 5 MHz / QPSK							
Plane	**Channel**	**Frequency (MHz)**	**LVL (dBm)**	**Correction Factor (dB)**	**EIRP (dBm)**	**EIRP (mW)**	**Polarization (H/V)**
X	20775	2502.5	-17.25	38.52	21.27	133.84	H
	21100	2535.0	-16.69	38.36	21.67	146.89	
	21425	2567.5	-16.47	38.58	22.11	162.55	
	20775	2502.5	-21.62	38.92	17.30	53.70	V
	21100	2535.0	-21.72	39.26	17.54	56.75	
	21425	2567.5	-21.52	39.22	17.70	58.88	
Channel Bandwidth: 5 MHz / 16QAM							
X	20775	2502.5	-18.27	38.52	20.25	105.83	H
	21100	2535.0	-17.70	38.36	20.66	116.41	
	21425	2567.5	-17.53	38.58	21.05	127.35	
	20775	2502.5	-22.72	38.92	16.20	41.69	V
	21100	2535.0	-22.95	39.26	16.31	42.76	
	21425	2567.5	-22.78	39.22	16.44	44.06	
Channel Bandwidth: 5 MHz / 64QAM							
X	20775	2502.5	-23.31	38.52	15.21	33.16	H
	21100	2535.0	-22.89	38.36	15.47	35.24	
	21425	2567.5	-23.00	38.58	15.58	36.14	
	20775	2502.5	-19.74	38.92	19.18	82.79	V
	21100	2535.0	-19.68	39.26	19.58	90.78	
	21425	2567.5	-19.21	39.22	20.01	100.23	

LTE Band 7							
Channel Bandwidth: 10 MHz / QPSK							
Plane	**Channel**	**Frequency (MHz)**	**LVL (dBm)**	**Correction Factor (dB)**	**EIRP (dBm)**	**EIRP (mW)**	**Polarization (H/V)**
X	20800	2505.0	-16.45	38.65	22.20	166.11	H
	21100	2535.0	-15.84	38.36	22.52	178.65	
	21400	2565.0	-15.56	38.49	22.92	196.06	
	20800	2505.0	-20.57	38.84	18.27	67.14	V
	21100	2535.0	-21.03	39.26	18.23	66.53	
	21400	2565.0	-20.55	39.10	18.55	71.61	
Channel Bandwidth: 10 MHz / 16QAM							
X	20800	2505.0	-17.49	38.65	21.16	130.74	H
	21100	2535.0	-16.93	38.36	21.43	139.00	
	21400	2565.0	-16.63	38.49	21.85	153.25	
	20800	2505.0	-21.67	38.84	17.17	52.12	V
	21100	2535.0	-22.00	39.26	17.26	53.21	
	21400	2565.0	-21.58	39.10	17.52	56.49	
Channel Bandwidth: 10 MHz / 64QAM							
X	20800	2505.0	-18.55	38.65	20.10	102.42	H
	21100	2535.0	-17.97	38.36	20.39	109.40	
	21400	2565.0	-17.72	38.49	20.76	119.23	
	20800	2505.0	-22.69	38.84	16.15	41.21	V
	21100	2535.0	-23.13	39.26	16.13	41.02	
	21400	2565.0	-22.63	39.10	16.47	44.36	

LTE Band 7							
Channel Bandwidth: 15 MHz / QPSK							
Plane	**Channel**	**Frequency (MHz)**	**LVL (dBm)**	**Correction Factor (dB)**	**EIRP (dBm)**	**EIRP (mW)**	**Polarization (H/V)**
X	20825	2507.5	-16.30	38.52	22.22	166.57	H
	21100	2535.0	-15.73	38.36	22.63	183.23	
	21375	2562.5	-15.50	38.58	23.08	203.24	
	20825	2507.5	-20.61	38.92	18.31	67.76	V
	21100	2535.0	-20.73	39.26	18.53	71.29	
	21375	2562.5	-20.47	39.22	18.75	74.99	
Channel Bandwidth: 15 MHz / 16QAM							
X	20825	2507.5	-17.34	38.52	21.18	131.10	H
	21100	2535.0	-16.80	38.36	21.56	143.22	
	21375	2562.5	-16.52	38.58	22.06	160.69	
	20825	2507.5	-21.62	38.92	17.30	53.70	V
	21100	2535.0	-21.74	39.26	17.52	56.49	
	21375	2562.5	-21.53	39.22	17.69	58.75	
Channel Bandwidth: 15 MHz / 64QAM							
X	20825	2507.5	-18.40	38.52	20.12	102.71	H
	21100	2535.0	-17.81	38.36	20.55	113.50	
	21375	2562.5	-17.56	38.58	21.02	126.47	
	20825	2507.5	-22.70	38.92	16.22	41.88	V
	21100	2535.0	-22.78	39.26	16.48	44.46	
	21375	2562.5	-22.62	39.22	16.60	45.71	

LTE Band 7							
Channel Bandwidth: 20 MHz / QPSK							
Plane	**Channel**	**Frequency (MHz)**	**LVL (dBm)**	**Correction Factor (dB)**	**EIRP (dBm)**	**EIRP (mW)**	**Polarization (H/V)**
X	20850.0	2510.0	-16.15	38.52	22.37	172.42	H
	21100.0	2535.0	-15.55	38.36	22.81	190.99	
	21350.0	2560.0	-15.37	38.58	23.21	209.41	
	20850.0	2510.0	-20.50	38.92	18.42	69.50	V
	21100.0	2535.0	-20.65	39.26	18.61	72.61	
	21350.0	2560.0	-20.36	39.22	18.86	76.91	
Channel Bandwidth: 20 MHz / 16QAM							
X	20850.0	2510.0	-17.20	38.52	21.32	135.39	H
	21100.0	2535.0	-16.64	38.36	21.72	148.59	
	21350.0	2560.0	-16.46	38.58	22.12	162.93	
	20850.0	2510.0	-21.56	38.92	17.36	54.45	V
	21100.0	2535.0	-21.74	39.26	17.52	56.49	
	21350.0	2560.0	-21.38	39.22	17.84	60.81	
Channel Bandwidth: 20 MHz / 64QAM							
X	20850.0	2510.0	-18.22	38.52	20.30	107.05	H
	21100.0	2535.0	-17.68	38.36	20.68	116.95	
	21350.0	2560.0	-17.54	38.58	21.04	127.06	
	20850.0	2510.0	-22.59	38.92	16.33	42.95	V
	21100.0	2535.0	-22.76	39.26	16.50	44.67	
	21350.0	2560.0	-22.45	39.22	16.77	47.53	

LTE Band 38							
Channel Bandwidth: 5 MHz / QPSK							
Plane	**Channel**	**Frequency (MHz)**	**LVL (dBm)**	**Correction Factor (dB)**	**EIRP (dBm)**	**EIRP (mW)**	**Polarization (H/V)**
X	37775	2572.5	-13.84	38.99	25.15	327.34	H
	38000	2595.0	-12.64	38.17	25.53	357.27	
	38225	2617.5	-12.59	38.55	25.96	394.46	
	37775	2572.5	-18.31	39.27	20.96	124.74	V
	38000	2595.0	-17.04	38.68	21.64	145.88	
	38225	2617.5	-16.71	38.55	21.84	152.76	
Channel Bandwidth: 5 MHz / 16QAM							
X	37775	2572.5	-14.72	38.99	24.27	267.30	H
	38000	2595.0	-13.27	38.17	24.90	309.03	
	38225	2617.5	-13.24	38.55	25.31	339.63	
	37775	2572.5	-19.66	39.27	19.61	91.41	V
	38000	2595.0	-18.19	38.68	20.49	111.94	
	38225	2617.5	-17.66	38.55	20.89	122.74	
Channel Bandwidth: 5 MHz / 64QAM							
X	37775	2572.5	-15.63	38.99	23.36	216.77	H
	38000	2595.0	-14.33	38.17	23.84	242.10	
	38225	2617.5	-15.28	38.55	23.27	212.32	
	37775	2572.5	-20.70	39.27	18.57	71.94	V
	38000	2595.0	-19.26	38.68	19.42	87.50	
	38225	2617.5	-18.69	38.55	19.86	96.83	

LTE Band 38							
Channel Bandwidth: 10 MHz / QPSK							
Plane	**Channel**	**Frequency (MHz)**	**LVL (dBm)**	**Correction Factor (dB)**	**EIRP (dBm)**	**EIRP (mW)**	**Polarization (H/V)**
X	37800	2575.0	-13.28	38.98	25.70	371.54	H
	38000	2595.0	-11.86	38.17	26.31	427.56	
	38200	2615.0	-11.70	38.45	26.75	473.15	
	37800	2575.0	-17.67	39.04	21.37	137.09	V
	38000	2595.0	-16.77	38.68	21.91	155.24	
	38200	2615.0	-16.41	38.60	22.19	165.58	
Channel Bandwidth: 10 MHz / 16QAM							
X	37800	2575.0	-14.37	38.98	24.61	289.07	H
	38000	2595.0	-12.88	38.17	25.29	338.06	
	38200	2615.0	-12.71	38.45	25.74	374.97	
	37800	2575.0	-18.69	39.04	20.35	108.39	V
	38000	2595.0	-17.86	38.68	20.82	120.78	
	38200	2615.0	-17.47	38.60	21.13	129.72	
Channel Bandwidth: 10 MHz / 64QAM							
X	37800	2575.0	-15.44	38.98	23.54	225.94	H
	38000	2595.0	-13.94	38.17	24.23	264.85	
	38200	2615.0	-13.78	38.45	24.67	293.09	
	37800	2575.0	-19.77	39.04	19.27	84.53	V
	38000	2595.0	-18.90	38.68	19.78	95.06	
	38200	2615.0	-18.51	38.60	20.09	102.09	

LTE Band 38							
Channel Bandwidth: 15 MHz / QPSK							
Plane	**Channel**	**Frequency (MHz)**	**LVL (dBm)**	**Correction Factor (dB)**	**EIRP (dBm)**	**EIRP (mW)**	**Polarization (H/V)**
X	37825	2577.5	-13.15	39.09	25.94	392.64	H
	38000	2595.0	-11.72	38.17	26.45	441.57	
	38175	2612.5	-11.68	38.52	26.84	483.06	
	37825	2577.5	-17.46	39.04	21.58	143.88	V
	38000	2595.0	-16.59	38.68	22.09	161.81	
	38175	2612.5	-16.24	38.66	22.42	174.58	
Channel Bandwidth: 15 MHz / 16QAM							
X	37825	2577.5	-14.16	39.09	24.93	311.17	H
	38000	2595.0	-12.76	38.17	25.41	347.54	
	38175	2612.5	-12.73	38.52	25.79	379.31	
	37825	2577.5	-18.52	39.04	20.52	112.72	V
	38000	2595.0	-17.67	38.68	21.01	126.18	
	38175	2612.5	-17.28	38.66	21.38	137.40	
Channel Bandwidth: 15 MHz / 64QAM							
X	37825	2577.5	-15.20	39.09	23.89	244.91	H
	38000	2595.0	-13.83	38.17	24.34	271.64	
	38175	2612.5	-13.74	38.52	24.78	300.61	
	37825	2577.5	-19.57	39.04	19.47	88.51	V
	38000	2595.0	-18.71	38.68	19.97	99.31	
	38175	2612.5	-18.32	38.66	20.34	108.14	

LTE Band 38							
Channel Bandwidth: 20 MHz / QPSK							
Plane	**Channel**	**Frequency (MHz)**	**LVL (dBm)**	**Correction Factor (dB)**	**EIRP (dBm)**	**EIRP (mW)**	**Polarization (H/V)**
X	37850	2580.0	-13.18	39.26	26.08	405.51	H
	38000	2595.0	-11.58	38.17	26.59	456.04	
	38150	2610.0	-11.74	38.71	26.97	497.74	
	37850	2580.0	-17.64	39.33	21.69	147.57	V
	38000	2595.0	-16.48	38.68	22.20	165.96	
	38150	2610.0	-16.18	38.76	22.58	181.13	
Channel Bandwidth: 20 MHz / 16QAM							
X	37850	2580.0	-14.24	39.26	25.02	317.69	H
	38000	2595.0	-12.64	38.17	25.53	357.27	
	38150	2610.0	-12.77	38.71	25.94	392.64	
	37850	2580.0	-18.68	39.33	20.65	116.14	V
	38000	2595.0	-17.57	38.68	21.11	129.12	
	38150	2610.0	-17.24	38.76	21.52	141.91	
Channel Bandwidth: 20 MHz / 64QAM							
X	37850	2580.0	-15.33	39.26	23.93	247.17	H
	38000	2595.0	-13.72	38.17	24.45	278.61	
	38150	2610.0	-13.78	38.71	24.93	311.17	
	37850	2580.0	-19.75	39.33	19.58	90.78	V
	38000	2595.0	-18.65	38.68	20.03	100.69	
	38150	2610.0	-18.30	38.76	20.46	111.17	

LTE Band 41							
Channel Bandwidth: 5 MHz / QPSK							
Plane	**Channel**	**Frequency (MHz)**	**LVL (dBm)**	**Correction Factor (dB)**	**EIRP (dBm)**	**EIRP (mW)**	**Polarization (H/V)**
X	39675	2498.5	-13.71	38.99	25.28	337.29	H
	40620	2593.0	-12.95	38.17	25.22	332.66	
	41565	2687.5	-13.53	38.55	25.02	317.69	
	39675	2498.5	-18.06	39.27	21.21	132.13	V
	40620	2593.0	-17.59	38.68	21.09	128.53	
	41565	2687.5	-17.71	38.55	20.84	121.34	
Channel Bandwidth: 5 MHz / 16QAM							
X	39675	2498.5	-14.80	38.99	24.19	262.42	H
	40620	2593.0	-14.01	38.17	24.16	260.62	
	41565	2687.5	-14.61	38.55	23.94	247.74	
	39675	2498.5	-19.11	39.27	20.16	103.75	V
	40620	2593.0	-18.60	38.68	20.08	101.86	
	41565	2687.5	-18.77	38.55	19.78	95.06	
Channel Bandwidth: 5 MHz / 64QAM							
X	39675	2498.5	-15.88	38.99	23.11	204.64	H
	40620	2593.0	-15.08	38.17	23.09	203.70	
	41565	2687.5	-15.63	38.55	22.92	195.88	
	39675	2498.5	-20.13	39.27	19.14	82.04	V
	40620	2593.0	-19.69	38.68	18.99	79.25	
	41565	2687.5	-19.80	38.55	18.75	74.99	

LTE Band 41							
Channel Bandwidth: 10 MHz / QPSK							
Plane	**Channel**	**Frequency (MHz)**	**LVL (dBm)**	**Correction Factor (dB)**	**EIRP (dBm)**	**EIRP (mW)**	**Polarization (H/V)**
X	39700	2501.0	-12.87	38.98	26.11	408.32	H
	40620	2593.0	-12.12	38.17	26.05	402.72	
	41540	2685.0	-12.54	38.45	25.91	389.94	
	39700	2501.0	-17.03	39.04	22.01	158.85	V
	40620	2593.0	-16.75	38.68	21.93	155.96	
	41540	2685.0	-16.85	38.60	21.75	149.62	
Channel Bandwidth: 10 MHz / 16QAM							
X	39700	2501.0	-13.96	38.98	25.02	317.69	H
	40620	2593.0	-13.14	38.17	25.03	318.42	
	41540	2685.0	-13.57	38.45	24.88	307.61	
	39700	2501.0	-18.06	39.04	20.98	125.31	V
	40620	2593.0	-17.81	38.68	20.87	122.18	
	41540	2685.0	-17.94	38.60	20.66	116.41	
Channel Bandwidth: 10 MHz / 64QAM							
X	39700	2501.0	-14.99	38.98	23.99	250.61	H
	40620	2593.0	-14.16	38.17	24.01	251.77	
	41540	2685.0	-14.61	38.45	23.84	242.10	
	39700	2501.0	-19.07	39.04	19.97	99.31	V
	40620	2593.0	-18.90	38.68	19.78	95.06	
	41540	2685.0	-19.02	38.60	19.58	90.78	

LTE Band 41							
Channel Bandwidth: 15 MHz / QPSK							
Plane	**Channel**	**Frequency (MHz)**	**LVL (dBm)**	**Correction Factor (dB)**	**EIRP (dBm)**	**EIRP (mW)**	**Polarization (H/V)**
X	39725	2503.5	-12.73	39.09	26.36	432.51	H
	40620	2593.0	-11.97	38.17	26.20	416.87	
	41515	2682.5	-12.59	38.52	25.93	391.74	
	39725	2503.5	-16.85	39.04	22.19	165.58	V
	40620	2593.0	-16.58	38.68	22.10	162.18	
	41515	2682.5	-16.86	38.66	21.80	151.36	
Channel Bandwidth: 15 MHz / 16QAM							
X	39725	2503.5	-13.75	39.09	25.34	341.98	H
	40620	2593.0	-12.99	38.17	25.18	329.61	
	41515	2682.5	-13.67	38.52	24.85	305.49	
	39725	2503.5	-17.90	39.04	21.14	130.02	V
	40620	2593.0	-17.63	38.68	21.05	127.35	
	41515	2682.5	-17.87	38.66	20.79	119.95	
Channel Bandwidth: 15 MHz / 64QAM							
X	39725	2503.5	-14.80	39.09	24.29	268.53	H
	40620	2593.0	-14.03	38.17	24.14	259.42	
	41515	2682.5	-14.76	38.52	23.76	237.68	
	39725	2503.5	-18.98	39.04	20.06	101.39	V
	40620	2593.0	-18.68	38.68	20.00	100.00	
	41515	2682.5	-18.92	38.66	19.74	94.19	

LTE Band 41							
Channel Bandwidth: 20 MHz / QPSK							
Plane	**Channel**	**Frequency (MHz)**	**LVL (dBm)**	**Correction Factor (dB)**	**EIRP (dBm)**	**EIRP (mW)**	**Polarization (H/V)**
X	39750	2506.0	-12.79	39.26	26.47	443.61	H
	40620	2593.0	-11.86	38.17	26.31	427.56	
	41490	2680.0	-12.61	38.71	26.10	407.38	
	39750	2506.0	-16.94	39.33	22.39	173.38	V
	40620	2593.0	-16.47	38.68	22.21	166.34	
	41490	2680.0	-16.78	38.76	21.98	157.76	
Channel Bandwidth: 20 MHz / 16QAM							
X	39750	2506.0	-13.87	39.26	25.39	345.94	H
	40620	2593.0	-12.88	38.17	25.29	338.06	
	41490	2680.0	-13.63	38.71	25.08	322.11	
	39750	2506.0	-17.95	39.33	21.38	137.40	V
	40620	2593.0	-17.54	38.68	21.14	130.02	
	41490	2680.0	-17.83	38.76	20.93	123.88	
Channel Bandwidth: 20 MHz / 64QAM							
X	39750	2506.0	-14.91	39.26	24.35	272.27	H
	40620	2593.0	-13.94	38.17	24.23	264.85	
	41490	2680.0	-14.69	38.71	24.02	252.35	
	39750	2506.0	-19.04	39.33	20.29	106.91	V
	40620	2593.0	-18.55	38.68	20.13	103.04	
	41490	2680.0	-18.87	38.76	19.89	97.50	

4.2 Frequency Stability Measurement

4.2.1 Limits of Frequency Stabiliity Measurement

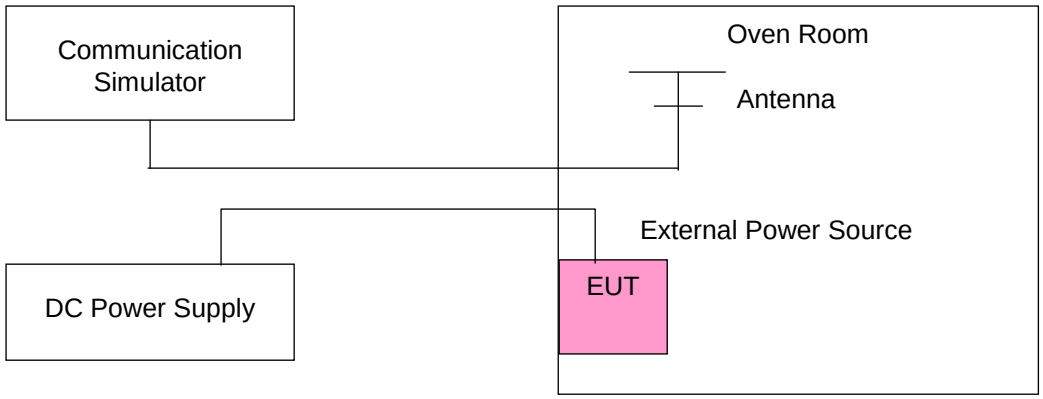
The frequency stability shall be sufficient to ensure that the fundamental emissions stay within the authorized bands of operation.

4.2.2 Test Procedure

a. Device is placed at the oven room. The oven room could control the temperatures and humidity. Power warm up is at least 15 min and power applied should perform before recording frequency error.
b. EUT is connected the external power supply to control the DC input power. The test voltage range is from minimum to maximum working voltage. Each step shall be record the frequency error rate.
c. The temperature range step is 10 degrees in this test items. All temperature levels shall be hold the ±0.5 ℃ during the measurement testing. The each temperature step shall be at least 0.5 hours, consider the EUT could be test under the stability condition.

NOTE: The frequency error was recorded frequency error from the communication simulator.

4.2.3 Test Setup



4.2.4 Test Results

Frequency Error vs. Voltage

Voltage (Volts)	LTE Band 7				Limit (ppm)
	Channel Bandwidth: 5 MHz				
	Low Channel		High Channel		
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)	
3.85	2502.500003	0.001	2567.500004	0.002	2.5
2.8	2502.500002	0.001	2567.500003	0.001	2.5
4.38	2502.500002	0.001	2567.500002	0.001	2.5

Note: The applicant defined the normal working voltage of the battery is from 2.8 Vdc to 4.38 Vdc.

Frequency Error vs. Temperature

Temp. (℃)	LTE Band 7				Limit (ppm)
	Channel Bandwidth: 5 MHz				
	Low Channel		High Channel		
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)	
-30	2502.500004	0.002	2567.500004	0.002	2.5
-20	2502.500002	0.001	2567.500002	0.001	2.5
-10	2502.500003	0.001	2567.500002	0.001	2.5
0	2502.500004	0.002	2567.500002	0.001	2.5
10	2502.500001	0.000	2567.500004	0.001	2.5
20	2502.499997	-0.001	2567.499998	-0.001	2.5
30	2502.499998	-0.001	2567.499997	-0.001	2.5
40	2502.499997	-0.001	2567.499998	-0.001	2.5
50	2502.499997	-0.001	2567.499996	-0.001	2.5

Frequency Error vs. Voltage

Voltage (Volts)	LTE Band 7				Limit (ppm)
	Channel Bandwidth: 10 MHz				
	Low Channel		High Channel		
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)	
3.85	2505.000001	0.000	2565.000003	0.001	2.5
2.8	2505.000004	0.002	2565.000001	0.001	2.5
4.38	2505.000002	0.001	2565.000003	0.001	2.5

Note: The applicant defined the normal working voltage of the battery is from 2.8 Vdc to 4.38 Vdc.

Frequency Error vs. Temperature

Temp. (℃)	LTE Band 7				Limit (ppm)
	Channel Bandwidth: 10 MHz				
	Low Channel		High Channel		
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)	
-30	2505.000002	0.001	2565.000003	0.001	2.5
-20	2505.000003	0.001	2565.000002	0.001	2.5
-10	2505.000002	0.001	2565.000003	0.001	2.5
0	2505.000004	0.001	2565.000003	0.001	2.5
10	2505.000003	0.001	2565.000004	0.001	2.5
20	2504.999997	-0.001	2564.999998	-0.001	2.5
30	2504.999999	-0.001	2564.999998	-0.001	2.5
40	2504.999997	-0.001	2564.999998	-0.001	2.5
50	2504.999997	-0.001	2564.999997	-0.001	2.5

Frequency Error vs. Voltage

Voltage (Volts)	LTE Band 7				Limit (ppm)
	Channel Bandwidth: 15 MHz				
	Low Channel		High Channel		
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)	
3.85	2507.500002	0.001	2562.500002	0.001	2.5
2.8	2507.500001	0.001	2562.500002	0.001	2.5
4.38	2507.500001	0.001	2562.500002	0.001	2.5

Note: The applicant defined the normal working voltage of the battery is from 2.8 Vdc to 4.38 Vdc.

Frequency Error vs. Temperature

Temp. (℃)	LTE Band 7				Limit (ppm)
	Channel Bandwidth: 15 MHz				
	Low Channel		High Channel		
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)	
-30	2507.500002	0.001	2562.500002	0.001	2.5
-20	2507.500003	0.001	2562.500003	0.001	2.5
-10	2507.500001	0.000	2562.500002	0.001	2.5
0	2507.500001	0.000	2562.500001	0.000	2.5
10	2507.500004	0.001	2562.500004	0.002	2.5
20	2507.499999	0.000	2562.499998	-0.001	2.5
30	2507.499998	-0.001	2562.499998	-0.001	2.5
40	2507.499997	-0.001	2562.499997	-0.001	2.5
50	2507.499998	-0.001	2562.499999	0.000	2.5

Frequency Error vs. Voltage

Voltage (Volts)	LTE Band 7				Limit (ppm)
	Channel Bandwidth: 20 MHz				
	Low Channel		High Channel		
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)	
3.85	2510.000002	0.001	2560.000003	0.001	2.5
2.8	2510.000002	0.001	2560.000002	0.001	2.5
4.38	2510.000003	0.001	2560.000001	0.000	2.5

Note: The applicant defined the normal working voltage of the battery is from 2.8 Vdc to 4.38 Vdc.

Frequency Error vs. Temperature

Temp. (℃)	LTE Band 7				Limit (ppm)
	Channel Bandwidth: 20 MHz				
	Low Channel		High Channel		
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)	
-30	2510.000003	0.001	2560.000002	0.001	2.5
-20	2510.000004	0.002	2560.000002	0.001	2.5
-10	2510.000004	0.001	2560.000002	0.001	2.5
0	2510.000002	0.001	2560.000004	0.001	2.5
10	2510.000003	0.001	2560.000003	0.001	2.5
20	2509.999998	-0.001	2559.999997	-0.001	2.5
30	2509.999996	-0.002	2559.999996	-0.001	2.5
40	2509.999998	-0.001	2559.999998	-0.001	2.5
50	2509.999998	-0.001	2559.999998	-0.001	2.5

Frequency Error vs. Voltage

Voltage (Volts)	LTE Band 38				Limit (ppm)
	Channel Bandwidth: 5 MHz				
	Low Channel		High Channel		
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)	
3.85	2572.500004	0.002	2617.500002	0.001	2.5
2.8	2572.500001	0.000	2617.500002	0.001	2.5
4.38	2572.500002	0.001	2617.500003	0.001	2.5

Note: The applicant defined the normal working voltage of the battery is from 2.8 Vdc to 4.38 Vdc.

Frequency Error vs. Temperature

Temp. (℃)	LTE Band 38				Limit (ppm)
	Channel Bandwidth: 5 MHz				
	Low Channel		High Channel		
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)	
-30	2572.500003	0.001	2617.500002	0.001	2.5
-20	2572.500002	0.001	2617.500002	0.001	2.5
-10	2572.500004	0.001	2617.500003	0.001	2.5
0	2572.500003	0.001	2617.500003	0.001	2.5
10	2572.500004	0.001	2617.500003	0.001	2.5
20	2572.499999	0.000	2617.499996	-0.001	2.5
30	2572.499999	-0.001	2617.499996	-0.001	2.5
40	2572.499998	-0.001	2617.499998	-0.001	2.5
50	2572.499998	-0.001	2617.499997	-0.001	2.5

Frequency Error vs. Voltage

Voltage (Volts)	LTE Band 38				Limit (ppm)
	Channel Bandwidth: 10 MHz				
	Low Channel		High Channel		
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)	
3.85	2575.000004	0.001	2615.000002	0.001	2.5
2.8	2575.000004	0.001	2615.000004	0.001	2.5
4.38	2575.000003	0.001	2615.000003	0.001	2.5

Note: The applicant defined the normal working voltage of the battery is from 2.8 Vdc to 4.38 Vdc.

Frequency Error vs. Temperature

Temp. (℃)	LTE Band 38				Limit (ppm)
	Channel Bandwidth: 10 MHz				
	Low Channel		High Channel		
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)	
-30	2575.000002	0.001	2615.000003	0.001	2.5
-20	2575.000004	0.001	2615.000002	0.001	2.5
-10	2575.000003	0.001	2615.000002	0.001	2.5
0	2575.000002	0.001	2615.000003	0.001	2.5
10	2575.000002	0.001	2615.000003	0.001	2.5
20	2574.999999	0.000	2614.999999	0.000	2.5
30	2574.999998	-0.001	2614.999997	-0.001	2.5
40	2574.999997	-0.001	2614.999998	-0.001	2.5
50	2574.999997	-0.001	2614.999997	-0.001	2.5

Frequency Error vs. Voltage

Voltage (Volts)	LTE Band 38				Limit (ppm)
	Channel Bandwidth: 15 MHz				
	Low Channel		High Channel		
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)	
3.85	2577.500001	0.001	2612.500003	0.001	2.5
2.8	2577.500002	0.001	2612.500003	0.001	2.5
4.38	2577.500003	0.001	2612.500002	0.001	2.5

Note: The applicant defined the normal working voltage of the battery is from 2.8 Vdc to 4.38 Vdc.

Frequency Error vs. Temperature

Temp. (℃)	LTE Band 38				Limit (ppm)
	Channel Bandwidth: 15 MHz				
	Low Channel		High Channel		
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)	
-30	2577.500004	0.002	2612.500001	0.000	2.5
-20	2577.500003	0.001	2612.500002	0.001	2.5
-10	2577.500004	0.001	2612.500002	0.001	2.5
0	2577.500002	0.001	2612.500004	0.001	2.5
10	2577.500002	0.001	2612.500002	0.001	2.5
20	2577.499998	-0.001	2612.499997	-0.001	2.5
30	2577.499997	-0.001	2612.499997	-0.001	2.5
40	2577.499996	-0.002	2612.499998	-0.001	2.5
50	2577.499999	0.000	2612.499997	-0.001	2.5

Frequency Error vs. Voltage

Voltage (Volts)	LTE Band 38				Limit (ppm)
	Channel Bandwidth: 20 MHz				
	Low Channel		High Channel		
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)	
3.85	2580.000003	0.001	2610.000004	0.001	2.5
2.8	2580.000002	0.001	2610.000002	0.001	2.5
4.38	2580.000004	0.001	2610.000003	0.001	2.5

Note: The applicant defined the normal working voltage of the battery is from 2.8 Vdc to 4.38 Vdc.

Frequency Error vs. Temperature

Temp. (℃)	LTE Band 38				Limit (ppm)
	Channel Bandwidth: 20 MHz				
	Low Channel		High Channel		
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)	
-30	2580.000001	0.000	2610.000002	0.001	2.5
-20	2580.000002	0.001	2610.000004	0.001	2.5
-10	2580.000002	0.001	2610.000002	0.001	2.5
0	2580.000002	0.001	2610.000003	0.001	2.5
10	2580.000003	0.001	2610.000002	0.001	2.5
20	2579.999997	-0.001	2609.999997	-0.001	2.5
30	2579.999997	-0.001	2609.999998	-0.001	2.5
40	2579.999997	-0.001	2609.999999	0.000	2.5
50	2579.999997	-0.001	2609.999999	0.000	2.5

Frequency Error vs. Voltage

Voltage (Volts)	LTE Band 41				Limit (ppm)
	Channel Bandwidth: 5 MHz				
	Low Channel		High Channel		
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)	
3.85	2498.500004	0.002	2687.500003	0.001	2.5
2.8	2498.500002	0.001	2687.500003	0.001	2.5
4.38	2498.500004	0.002	2687.500004	0.001	2.5

Note: The applicant defined the normal working voltage of the battery is from 2.8 Vdc to 4.38 Vdc.

Frequency Error vs. Temperature

Temp. (℃)	LTE Band 41				Limit (ppm)
	Channel Bandwidth: 5 MHz				
	Low Channel		High Channel		
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)	
-30	2498.500002	0.001	2687.500001	0.001	2.5
-20	2498.500004	0.001	2687.500003	0.001	2.5
-10	2498.500002	0.001	2687.500003	0.001	2.5
0	2498.500004	0.001	2687.500003	0.001	2.5
10	2498.500003	0.001	2687.500003	0.001	2.5
20	2498.499998	-0.001	2687.499997	-0.001	2.5
30	2498.499998	-0.001	2687.499998	-0.001	2.5
40	2498.499997	-0.001	2687.499997	-0.001	2.5
50	2498.499997	-0.001	2687.499997	-0.001	2.5

Frequency Error vs. Voltage

Voltage (Volts)	LTE Band 41				Limit (ppm)
	Channel Bandwidth: 10 MHz				
	Low Channel		High Channel		
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)	
3.85	2501.000002	0.001	2685.000003	0.001	2.5
2.8	2501.000003	0.001	2685.000003	0.001	2.5
4.38	2501.000003	0.001	2685.000001	0.000	2.5

Note: The applicant defined the normal working voltage of the battery is from 2.8 Vdc to 4.38 Vdc.

Frequency Error vs. Temperature

Temp. (℃)	LTE Band 41				Limit (ppm)
	Channel Bandwidth: 10 MHz				
	Low Channel		High Channel		
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)	
-30	2501.000004	0.002	2685.000002	0.001	2.5
-20	2501.000002	0.001	2685.000004	0.001	2.5
-10	2501.000003	0.001	2685.000004	0.001	2.5
0	2501.000002	0.001	2685.000002	0.001	2.5
10	2501.000004	0.002	2685.000003	0.001	2.5
20	2500.999998	-0.001	2684.999999	-0.001	2.5
30	2500.999999	0.000	2684.999997	-0.001	2.5
40	2500.999999	-0.001	2684.999998	-0.001	2.5
50	2500.999996	-0.002	2684.999998	-0.001	2.5

Frequency Error vs. Voltage

Voltage (Volts)	LTE Band 41				Limit (ppm)
	Channel Bandwidth: 15 MHz				
	Low Channel		High Channel		
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)	
3.85	2503.500001	0.000	2682.500003	0.001	2.5
2.8	2503.500003	0.001	2682.500002	0.001	2.5
4.38	2503.500002	0.001	2682.500003	0.001	2.5

Note: The applicant defined the normal working voltage of the battery is from 2.8 Vdc to 4.38 Vdc.

Frequency Error vs. Temperature

Temp. (℃)	LTE Band 41				Limit (ppm)
	Channel Bandwidth: 15 MHz				
	Low Channel		High Channel		
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)	
-30	2503.500002	0.001	2682.500002	0.001	2.5
-20	2503.500002	0.001	2682.500004	0.001	2.5
-10	2503.500001	0.000	2682.500002	0.001	2.5
0	2503.500003	0.001	2682.500002	0.001	2.5
10	2503.500003	0.001	2682.500003	0.001	2.5
20	2503.499999	-0.001	2682.499999	-0.001	2.5
30	2503.499997	-0.001	2682.499997	-0.001	2.5
40	2503.499998	-0.001	2682.499996	-0.001	2.5
50	2503.499997	-0.001	2682.499999	0.000	2.5

Frequency Error vs. Voltage

Voltage (Volts)	LTE Band 41				Limit (ppm)
	Channel Bandwidth: 20 MHz				
	Low Channel		High Channel		
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)	
3.85	2506.000001	0.001	2680.000002	0.001	2.5
2.8	2506.000004	0.001	2680.000002	0.001	2.5
4.38	2506.000001	0.001	2680.000002	0.001	2.5

Note: The applicant defined the normal working voltage of the battery is from 2.8 Vdc to 4.38 Vdc.

Frequency Error vs. Temperature

Temp. (℃)	LTE Band 41				Limit (ppm)
	Channel Bandwidth: 20 MHz				
	Low Channel		High Channel		
	Frequency (MHz)	Frequency Error (ppm)	Frequency (MHz)	Frequency Error (ppm)	
-30	2506.000004	0.001	2680.000003	0.001	2.5
-20	2506.000002	0.001	2680.000004	0.001	2.5
-10	2506.000001	0.000	2680.000002	0.001	2.5
0	2506.000002	0.001	2680.000001	0.001	2.5
10	2506.000002	0.001	2680.000002	0.001	2.5
20	2505.999998	-0.001	2679.999999	0.000	2.5
30	2505.999998	-0.001	2679.999999	0.000	2.5
40	2505.999997	-0.001	2679.999997	-0.001	2.5
50	2505.999997	-0.001	2679.999997	-0.001	2.5

4.3 Occupied Bandwidth Measurement

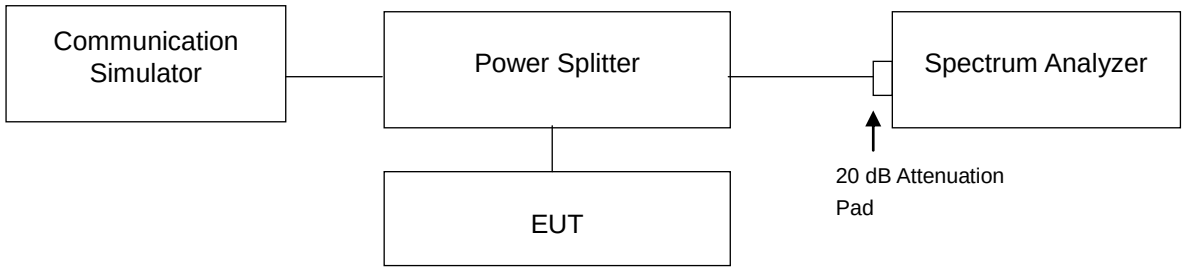
4.3.1 Limits of Occupied Bandwidth Measurement

The width of a frequency band such that, below the lower and above the upper frequency limits, the mean powers emitted are each equal to a specified percentage 0.5 % of the total mean power of a given emission.

4.3.2 Test Procedure

a. The conducted occupied bandwidth used the power splitter via EUT RF power connector between simulation base station and spectrum analyzer.
b. Use OBW measurement function of Spectrum analyzer to measure 99 % occupied bandwidth.

4.3.3 Test Setup



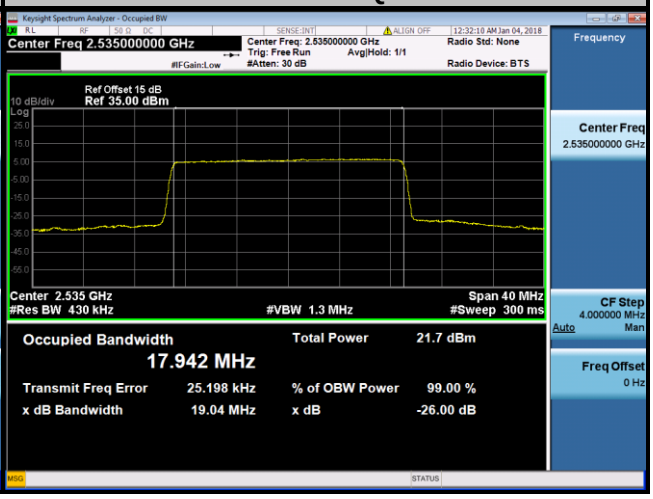
4.3.4 Test Result

LTE Band 7									
Channel Bandwidth: 5 MHz					Channel Bandwidth: 10 MHz				
Channel	Frequency (MHz)	99 % Occupied Bandwidth (MHz)			Channel	Frequency (MHz)	99 % Occupied Bandwidth (MHz)		
		QPSK	16QAM	64QAM			QPSK	16QAM	64QAM
20775	2502.5	4.4920	4.4934	4.4965	20800	2505.0	8.9602	8.9581	8.9601
21100	2535.0	4.4934	4.4965	4.4946	21100	2535.0	8.9711	8.9758	8.9707
21425	2567.5	4.5000	4.4968	4.4989	21400	2565.0	8.9805	8.9751	8.9730

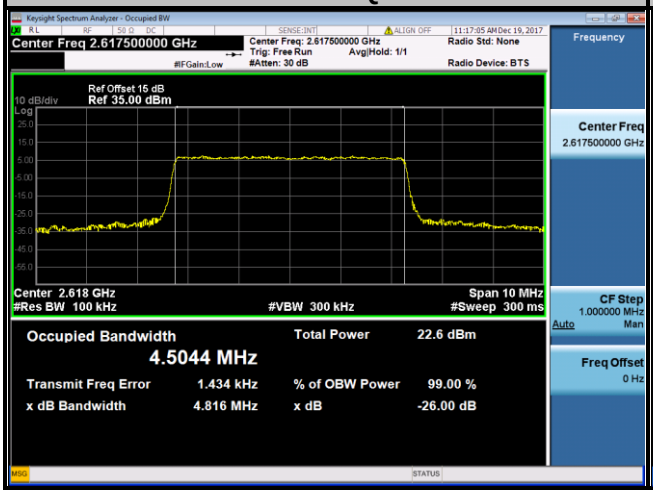
Spectrum Plot of Worst Value	
5 MHz / QPSK	10 MHz / QPSK
	

LTE Band 7									
Channel Bandwidth: 15 MHz					Channel Bandwidth: 20 MHz				
Channel	Frequency (MHz)	99 % Occupied Bandwidth (MHz)			Channel	Frequency (MHz)	99 % Occupied Bandwidth (MHz)		
		QPSK	16QAM	64QAM			QPSK	16QAM	64QAM
20825	2507.5	13.418	13.417	13.407	20850	2510.0	17.869	17.894	17.888
21100	2535.0	13.447	13.450	13.442	21100	2535.0	17.920	17.942	17.938
21375	2562.5	13.462	13.448	13.442	21350	2560.0	17.909	17.932	17.919

Spectrum Plot of Worst Value	
15 MHz / QPSK	20 MHz / 16QAM

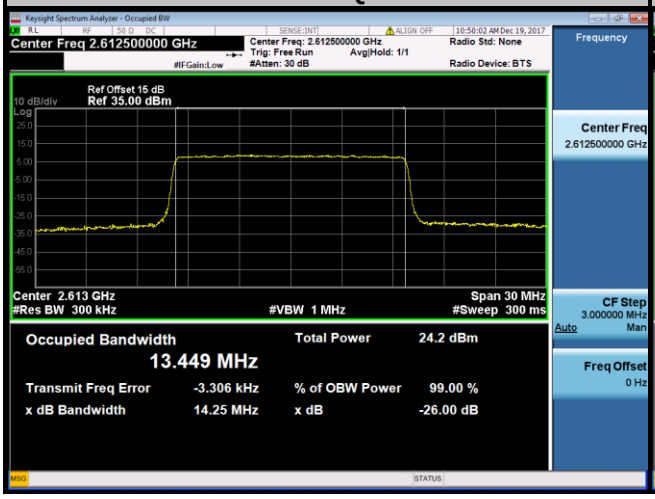


LTE Band 38									
Channel Bandwidth: 5 MHz					Channel Bandwidth: 10 MHz				
Channel	Frequency (MHz)	99 % Occupied Bandwidth (MHz)			Channel	Frequency (MHz)	99 % Occupied Bandwidth (MHz)		
		QPSK	16QAM	64QAM			QPSK	16QAM	64QAM
37775	2572.5	4.4881	4.4932	4.5014	37800	2575.0	8.9512	8.9678	8.9666
38000	2595.0	4.4912	4.4925	4.5019	38000	2595.0	8.9551	8.9661	8.9680
38225	2617.5	4.4967	4.4957	4.5044	38200	2615.0	8.9589	8.9688	8.9668

Spectrum Plot of Worst Value	
5 MHz / 64QAM	10 MHz / 16QAM
	

LTE Band 38									
Channel Bandwidth: 15 MHz					Channel Bandwidth: 20 MHz				
Channel	Frequency (MHz)	99 % Occupied Bandwidth (MHz)			Channel	Frequency (MHz)	99 % Occupied Bandwidth (MHz)		
		QPSK	16QAM	64QAM			QPSK	16QAM	64QAM
37825	2577.5	13.441	13.429	13.433	37850	2580.0	17.917	17.907	17.917
38000	2595.0	13.443	13.436	13.427	38000	2595.0	17.910	17.907	17.920
38175	2612.5	13.449	13.434	13.431	38150	2610.0	17.918	17.906	17.924

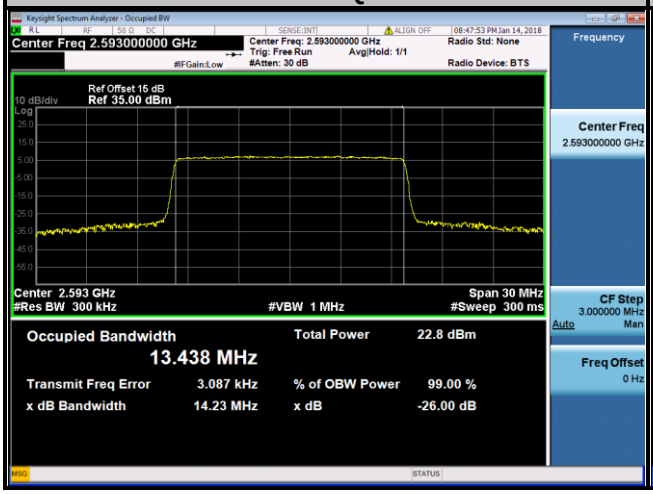
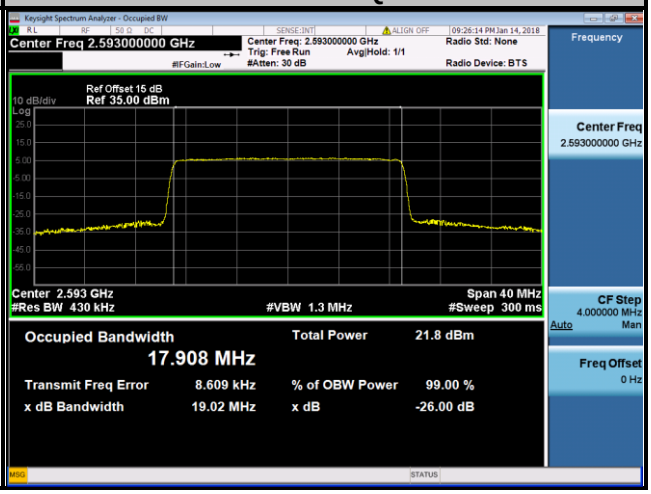
Spectrum Plot of Worst Value	
15 MHz / QPSK	20 MHz / 64QAM



LTE Band 41									
Channel Bandwidth: 5 MHz					Channel Bandwidth: 10 MHz				
Channel	Frequency (MHz)	99 % Occupied Bandwidth (MHz)			Channel	Frequency (MHz)	99 % Occupied Bandwidth (MHz)		
		QPSK	16QAM	64QAM			QPSK	16QAM	64QAM
39675	2498.5	4.4911	4.4918	4.4876	39700	2501.0	8.9517	8.9647	8.9625
40620	2593.0	4.4937	4.4949	4.4897	40620	2593.0	8.9587	8.9746	8.9661
41565	2687.5	4.4922	4.4922	4.4943	41540	2685.0	8.9554	8.9676	8.9657

Spectrum Plot of Worst Value	
5 MHz / 16QAM	10 MHz / 16QAM
	

LTE Band 41									
Channel Bandwidth: 15 MHz					Channel Bandwidth: 20 MHz				
Channel	Frequency (MHz)	99 % Occupied Bandwidth (MHz)			Channel	Frequency (MHz)	99 % Occupied Bandwidth (MHz)		
		QPSK	16QAM	64QAM			QPSK	16QAM	64QAM
39725	2503.5	13.432	13.420	13.422	39750	2506.0	17.893	17.886	17.888
40620	2593.0	13.438	13.430	13.427	40620	2593.0	17.902	17.895	17.908
41515	2682.5	13.431	13.419	13.419	41490	2680.0	17.890	17.886	17.891

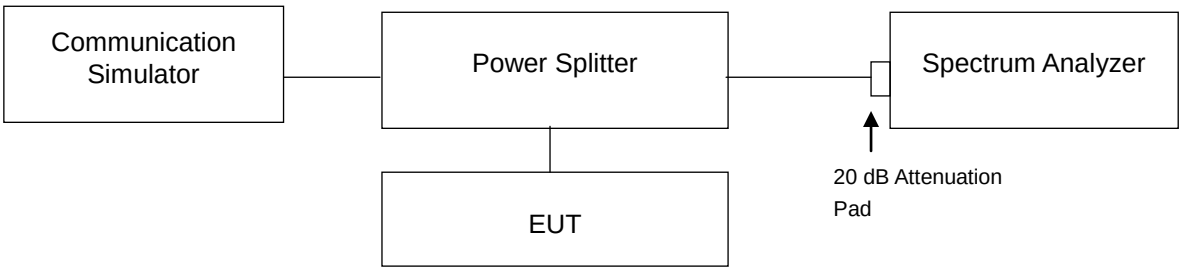
Spectrum Plot of Worst Value	
15 MHz / QPSK	20 MHz / 64QAM
	

4.4 Out-of-Band Emissions Measurement

4.4.1 Limits of Out-of-Band Emissions Measurement

According to FCC 27.53(l)(4) specified that power of any emission outside of the channel edge must be attenuated below the transmitting power (P) by a factor shall be not less than 40 + 10 log (P) dB on all frequencies between the channel edge and 5 megahertz from the channel edge, 43 + 10 log (P) dB on all frequencies between 5 megahertz and X megahertz from the channel edge, and 55 + 10 log (P) dB on all frequencies more than X megahertz from the channel edge, where X is the greater of 6 megahertz or the actual emission bandwidth. In addition, the attenuation factor shall not be less that 43 + 10 log (P) dB on all frequencies between 2490.5 MHz and 2496 MHz and 55 + 10 log (P) dB at or below 2490.5 MHz. In the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least two percent may be employed, except when the 1 megahertz band is 2495-2496 MHz, in which case a resolution bandwidth of at least one percent may be employed.

4.4.2 Test Setup

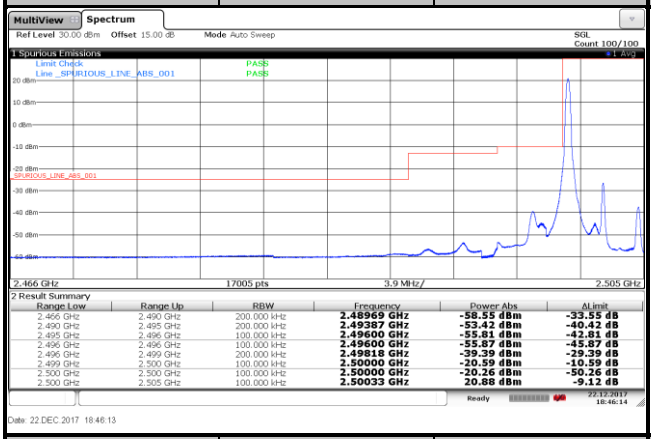


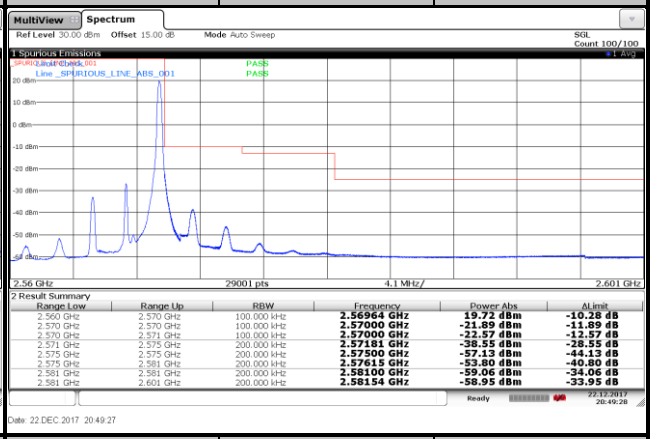
4.4.3 Test Procedures

a. The EUT was set up for the maximum peak power with LTE link data modulation. The power was measured with R&S Spectrum Analyzer. All measurements were done at 2 channels (low and high operational frequency range.).
b. The out-of-band emissions measurement used the power splitter via EUT RF power connector between simulation base station and spectrum analyzer.
c. Record the max. trace plot into the test report.

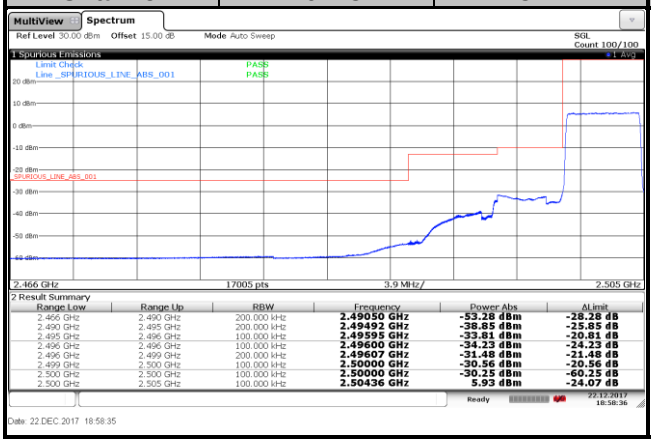
4.4.4 Test Results

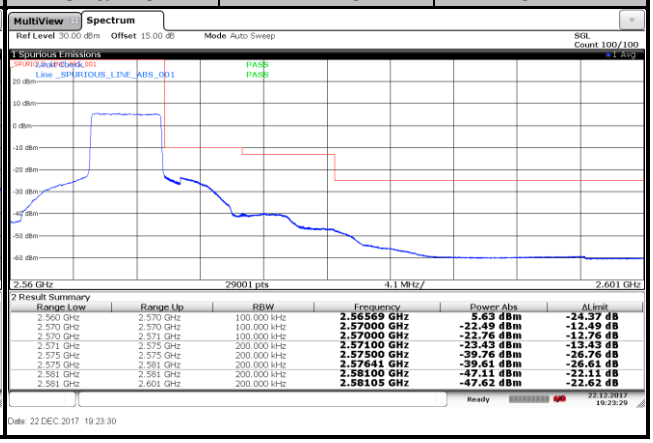
LTE Band 7					
Channel Bandwidth: 5 MHz / QPSK					
<Out-of-Band Emissions>					
Channel	20775	1 RB	Channel	21425	1 RB



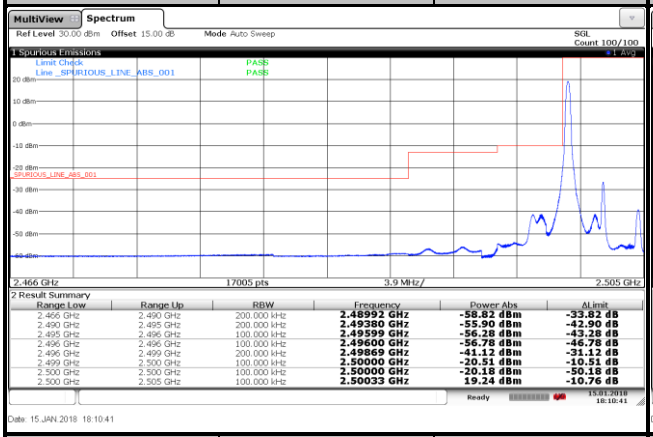


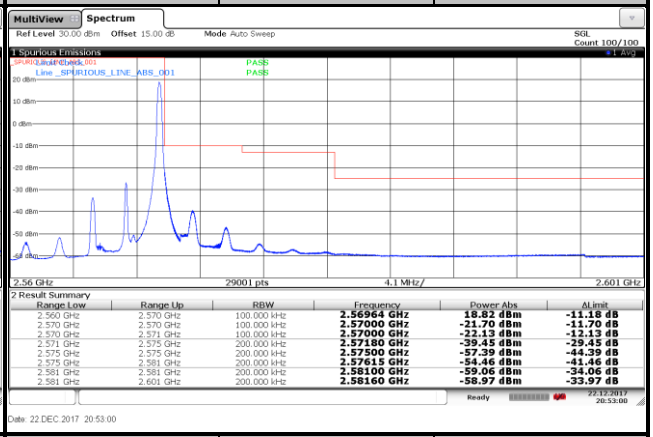
Channel	20775	25 RB	Channel	21425	25 RB



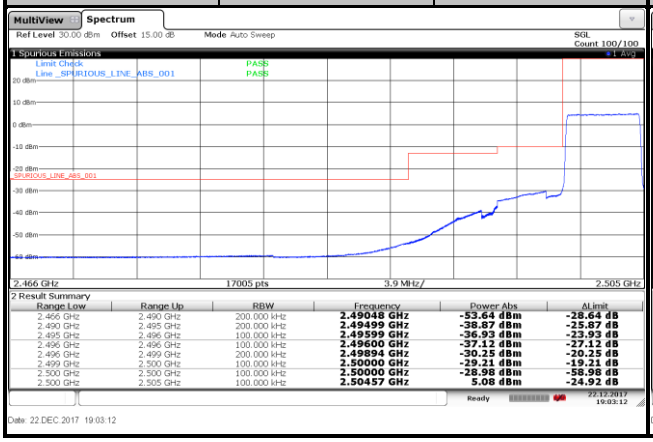


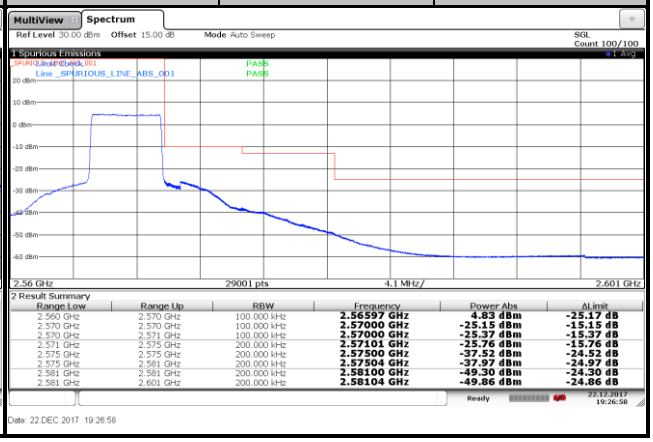
LTE Band 7					
Channel Bandwidth: 5 MHz / 16QAM					
<Out-of-Band Emissions>					
Channel	20775	1 RB	Channel	21425	1 RB



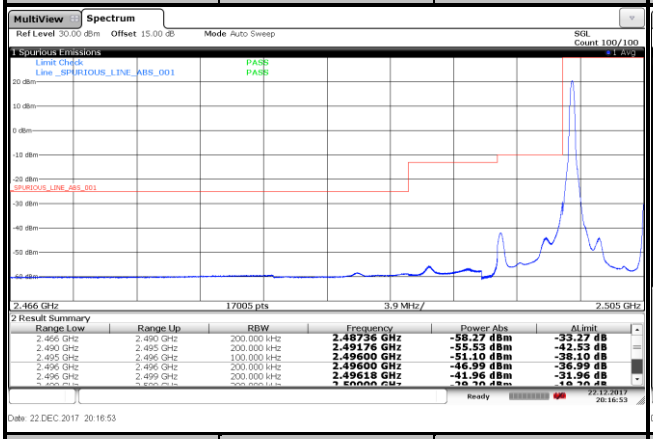


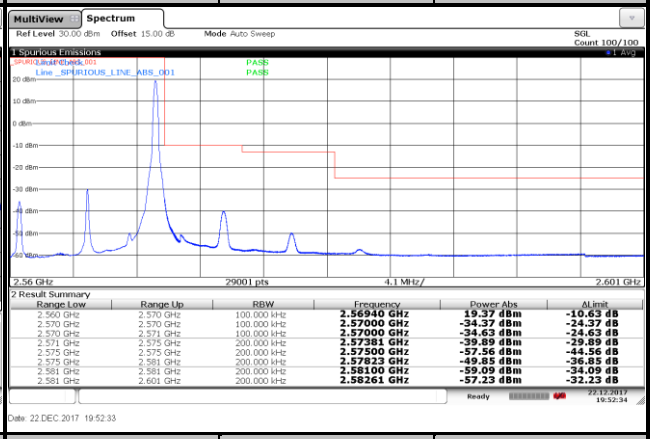
Channel	20775	25 RB	Channel	21425	25 RB



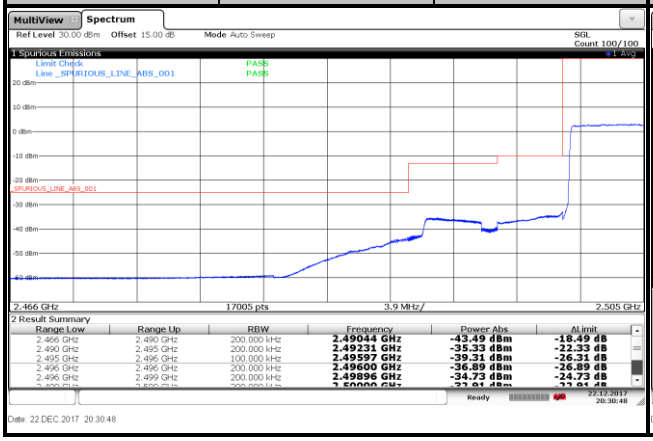


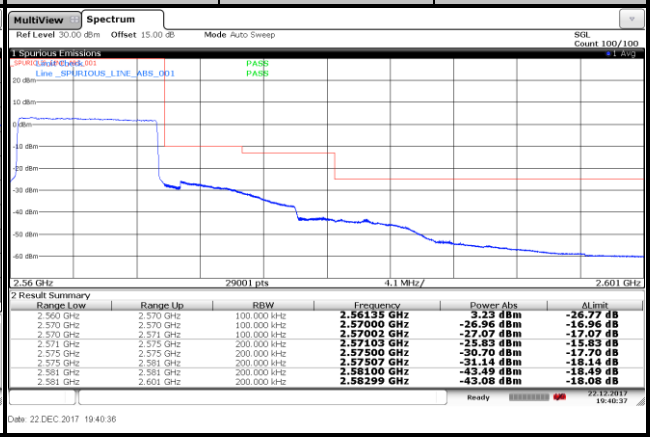
LTE Band 7					
Channel Bandwidth: 10 MHz / QPSK					
<Out-of-Band Emissions>					
Channel	20800	1 RB	Channel	21400	1 RB



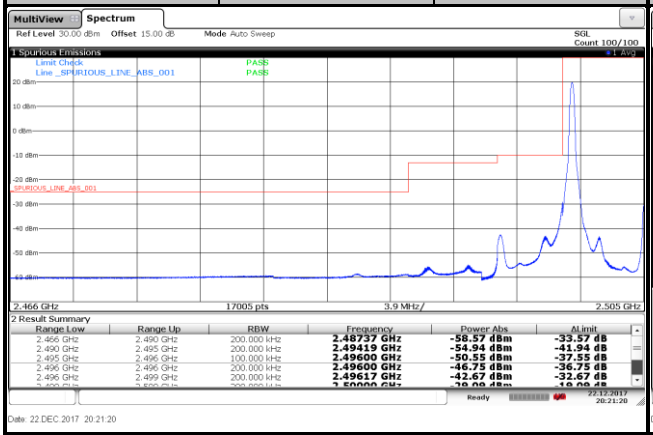


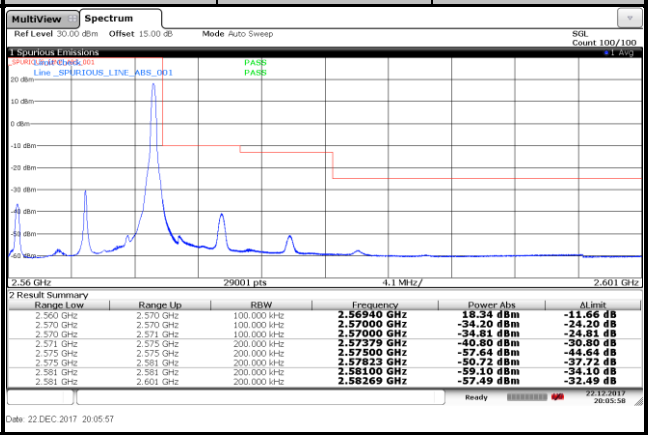
Channel	20800	50 RB	Channel	21400	50 RB

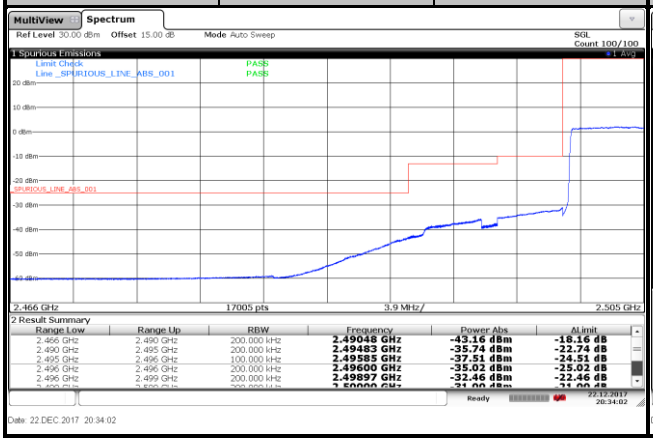


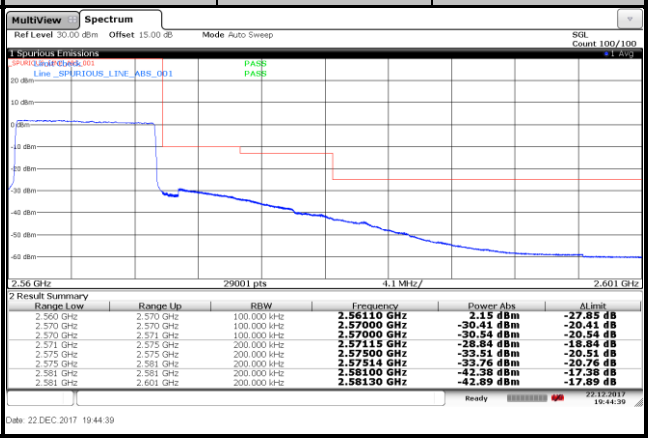


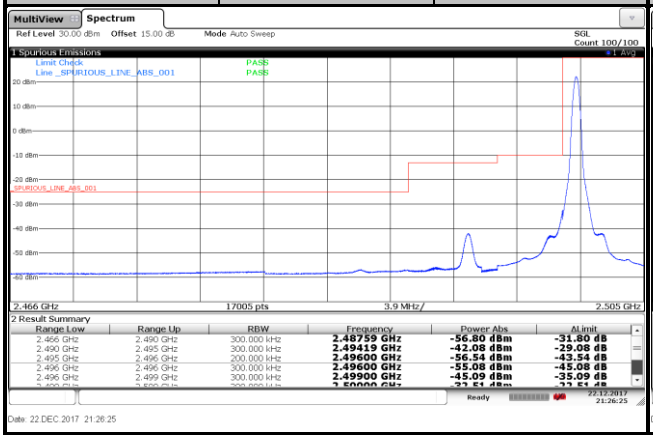
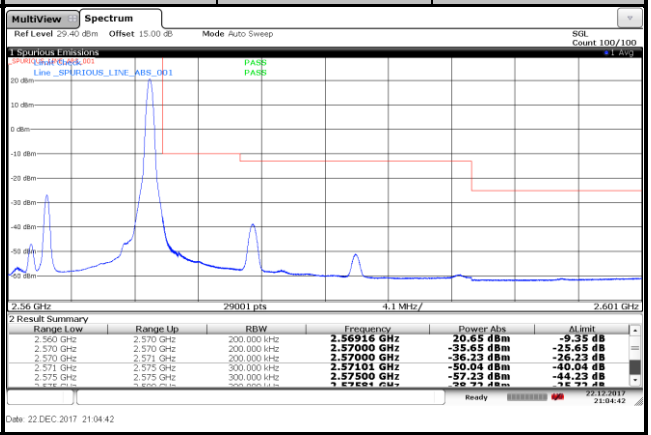
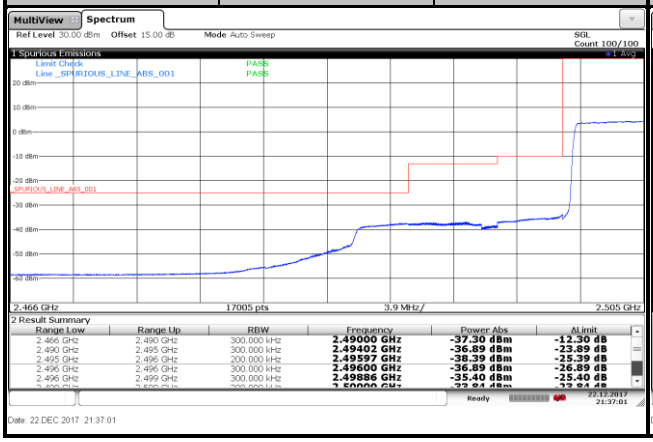
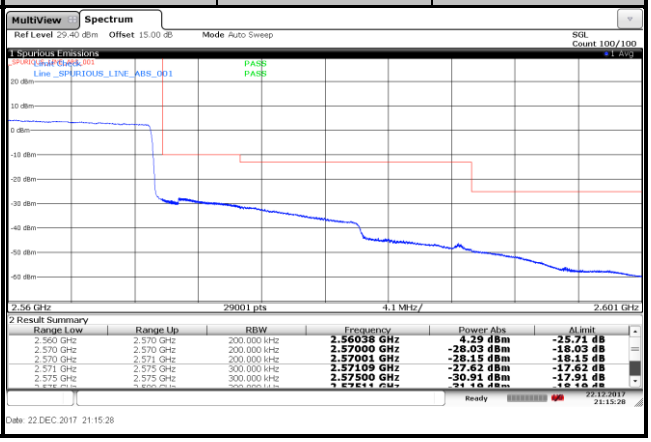
LTE Band 7					
Channel Bandwidth: 10 MHz / 16QAM					
<Out-of-Band Emissions>					
Channel	20800	1 RB	Channel	21400	1 RB
Channel	20800	50 RB	Channel	21400	50 RB

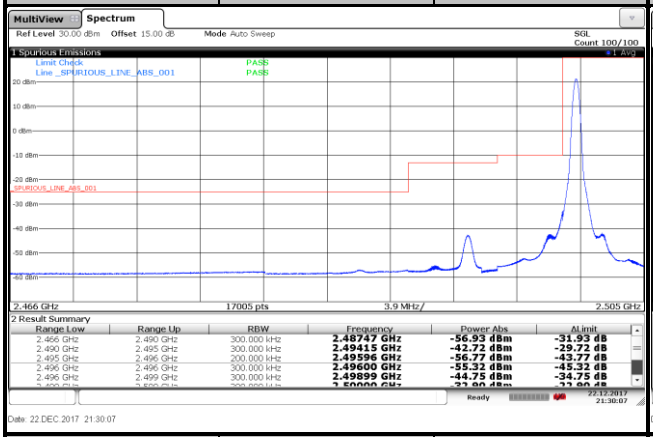
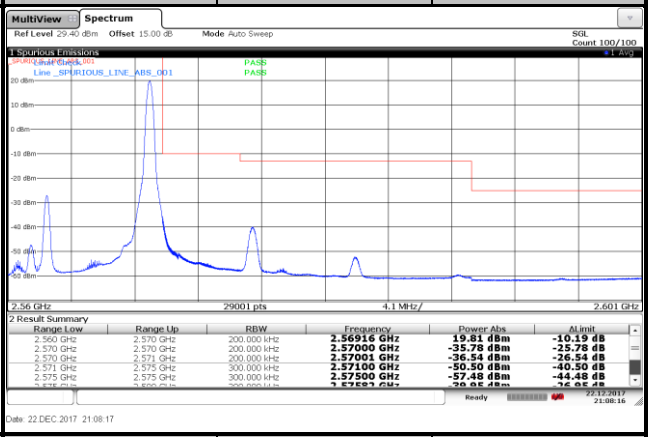
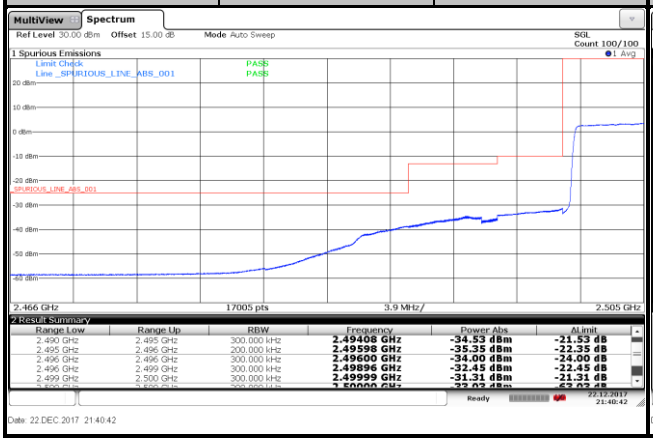
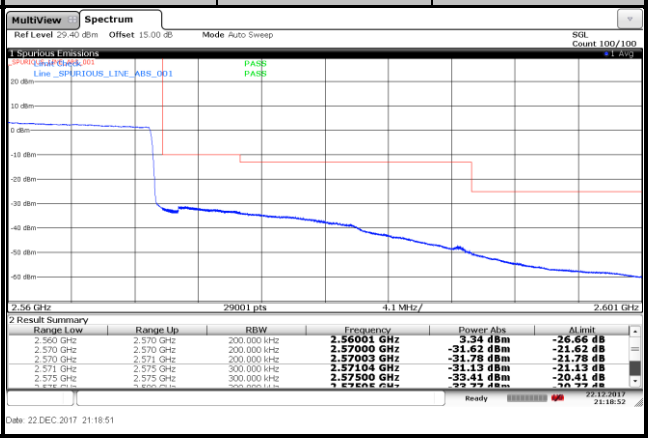


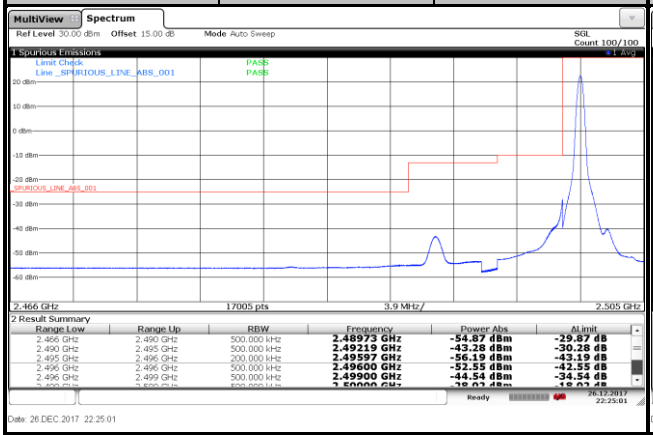
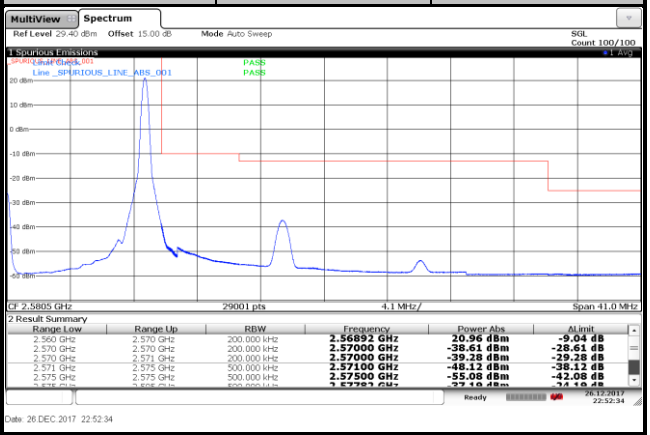
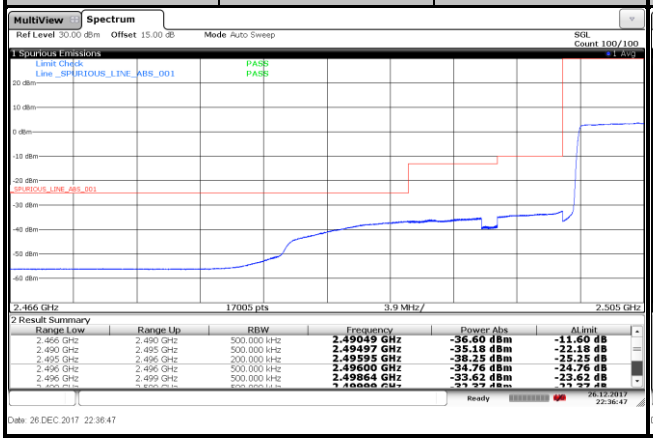
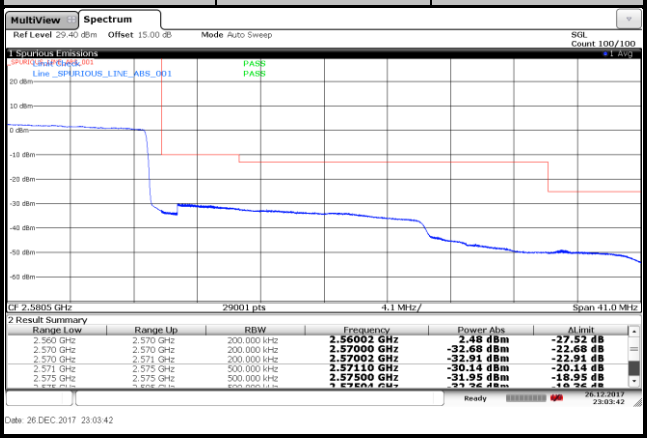


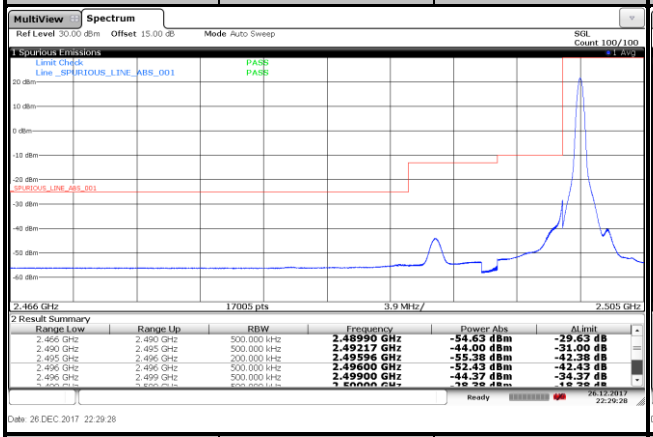
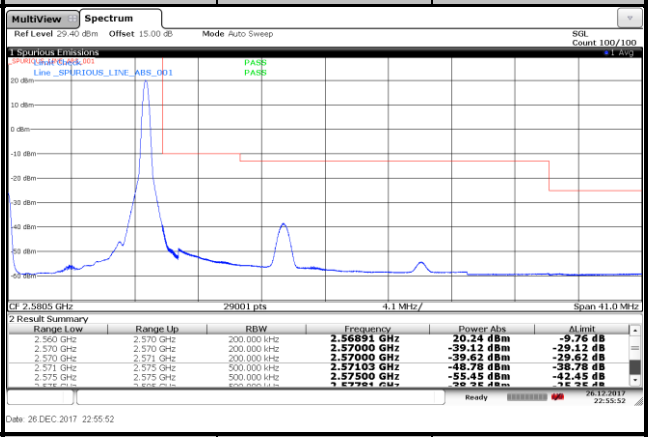
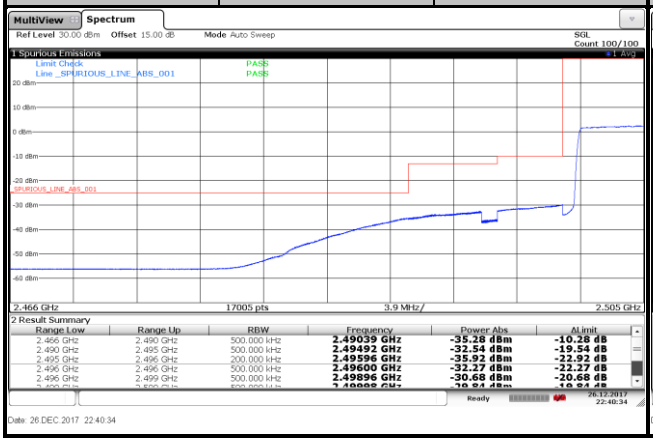
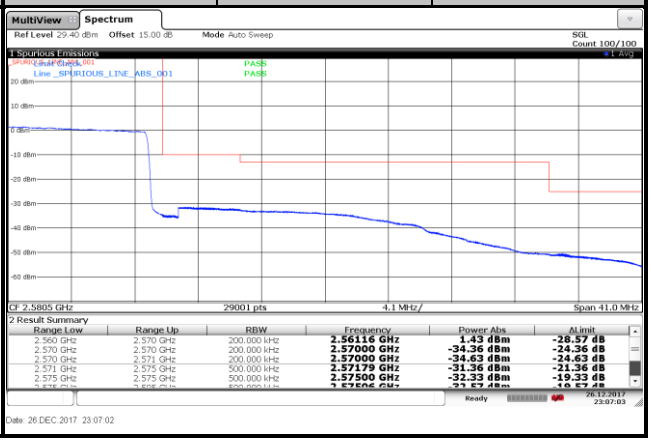




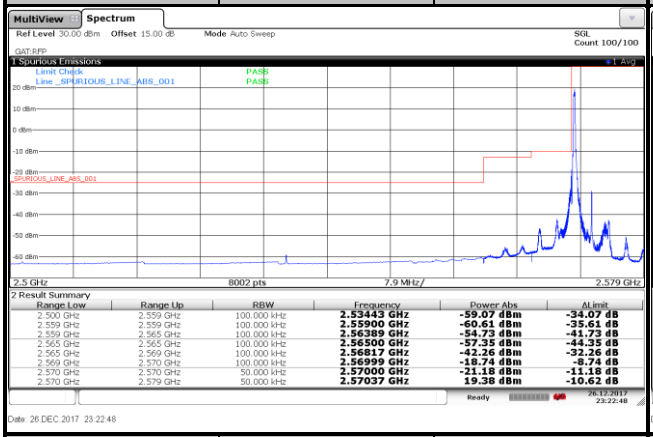
LTE Band 7					
Channel Bandwidth: 15 MHz / QPSK					
<Out-of-Band Emissions>					
Channel	20825	1 RB	Channel	21375	1 RB
					
Channel	20825	75 RB	Channel	21375	75 RB
					

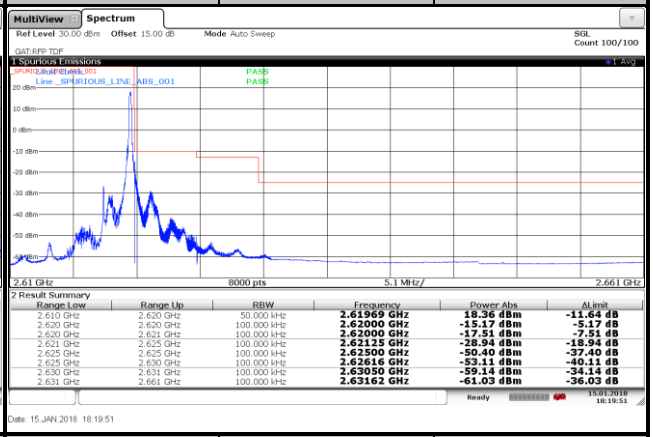
LTE Band 7					
Channel Bandwidth: 15 MHz / 16QAM					
<Out-of-Band Emissions>					
Channel	20825	1 RB	Channel	21375	1 RB
					
Channel	20825	75 RB	Channel	21375	75 RB
					

LTE Band 7					
Channel Bandwidth: 20 MHz / QPSK					
<Out-of-Band Emissions>					
Channel	20850	1 RB	Channel	21350	1 RB
					
Channel	20850	100 RB	Channel	21350	100 RB
					

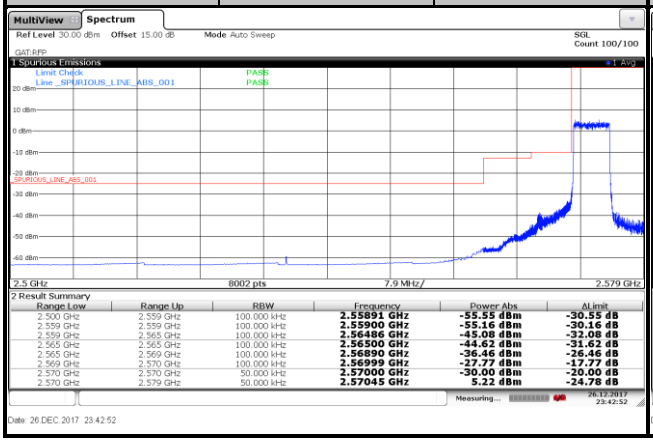
LTE Band 7					
Channel Bandwidth: 20 MHz / 16QAM					
<Out-of-Band Emissions>					
Channel	20850	1 RB	Channel	21350	1 RB
					
Channel	20850	100 RB	Channel	21350	100 RB
					

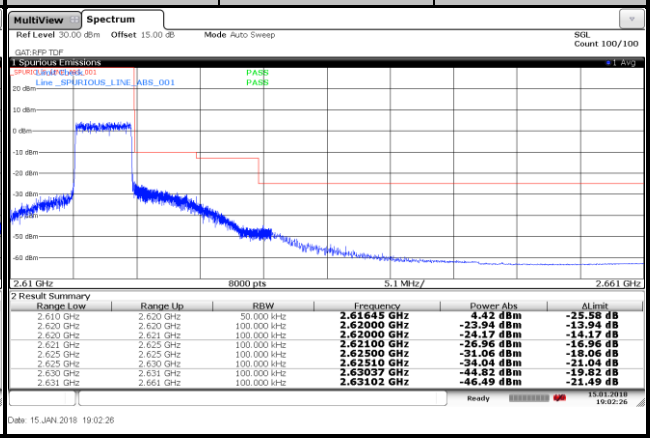
LTE Band 38					
Channel Bandwidth: 5 MHz / QPSK					
<Out-of-Band Emissions>					
Channel	37775	1 RB	Channel	38225	1 RB





Channel	37775	25 RB	Channel	38225	25 RB



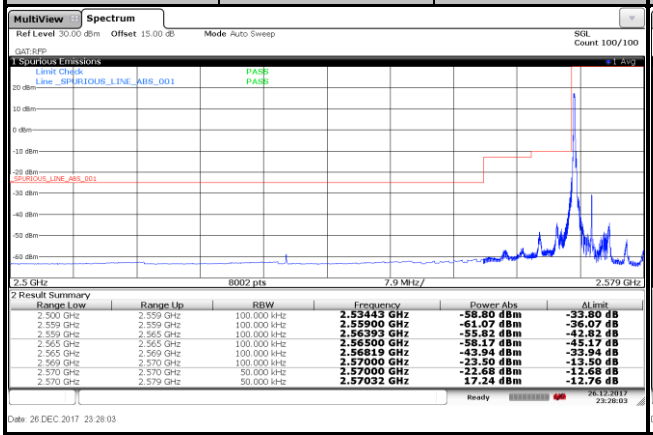


LTE Band 38

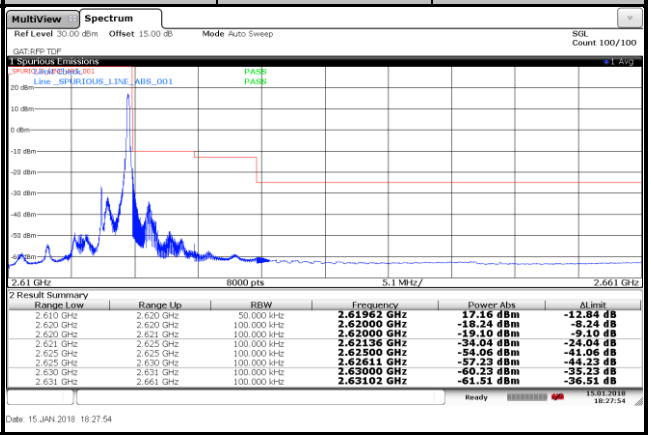
Channel Bandwidth: 5 MHz / 16QAM

<Out-of-Band Emissions>

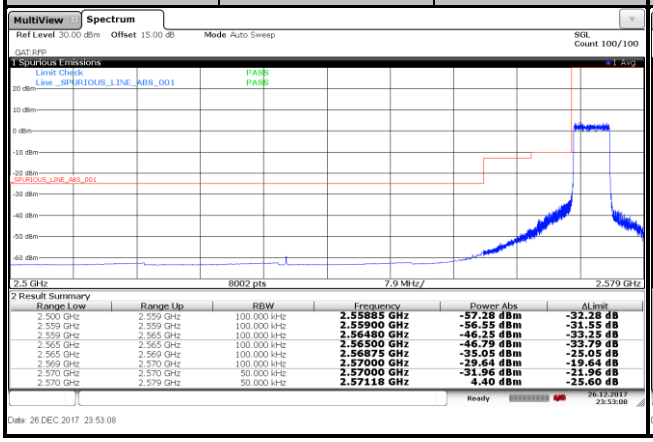
Channel	37775	1 RB



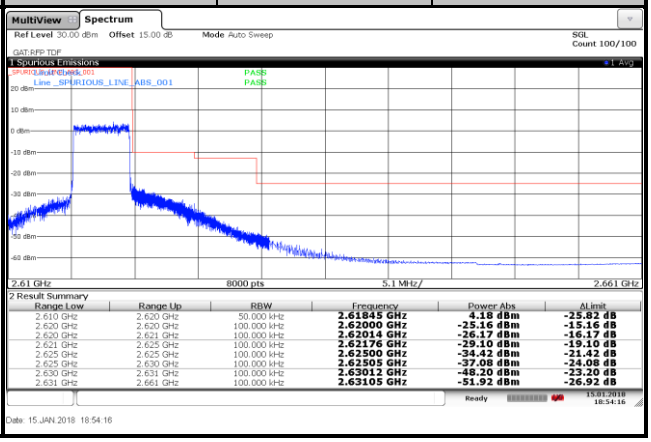
Channel	38225	1 RB



Channel	37775	25 RB



Channel	38225	25 RB

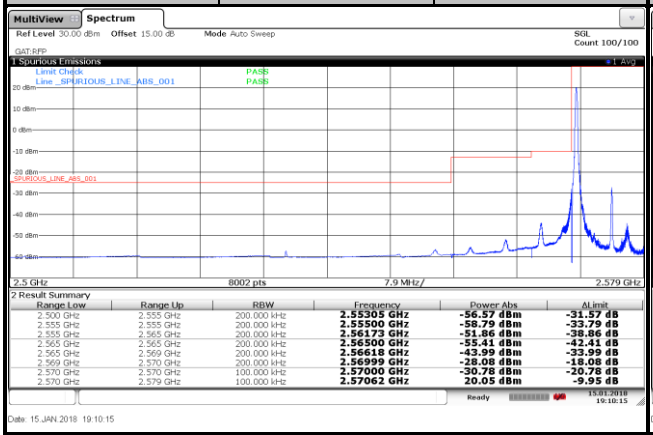


LTE Band 38

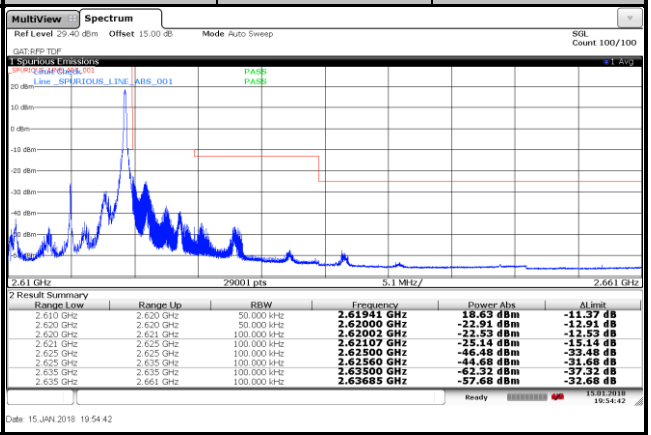
Channel Bandwidth: 10 MHz / QPSK

<Out-of-Band Emissions>

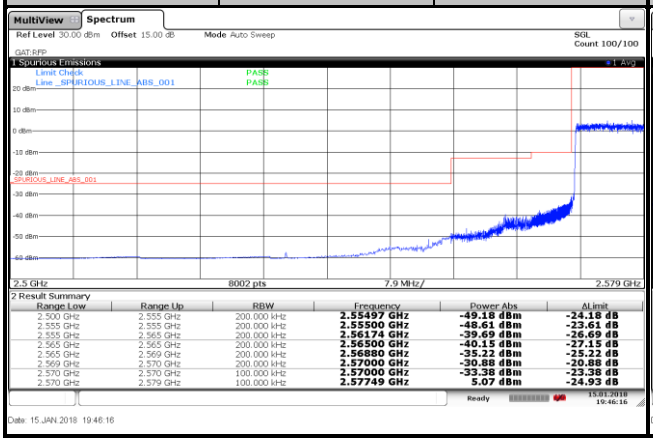
Channel	37800	1 RB



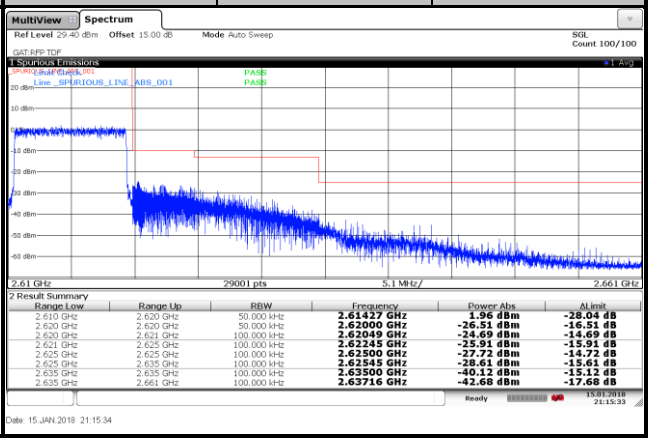
Channel	38200	1 RB



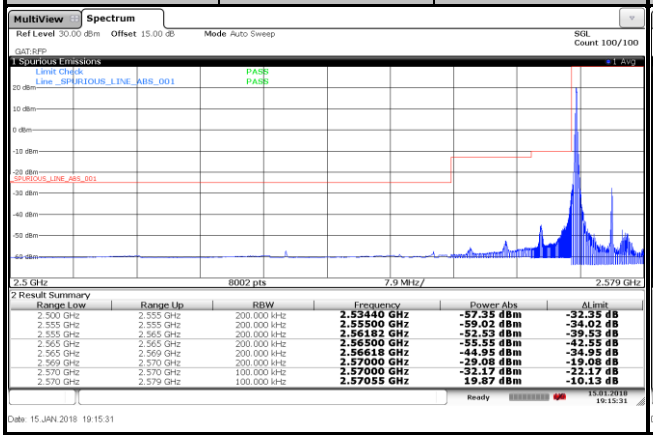
Channel	37800	50 RB

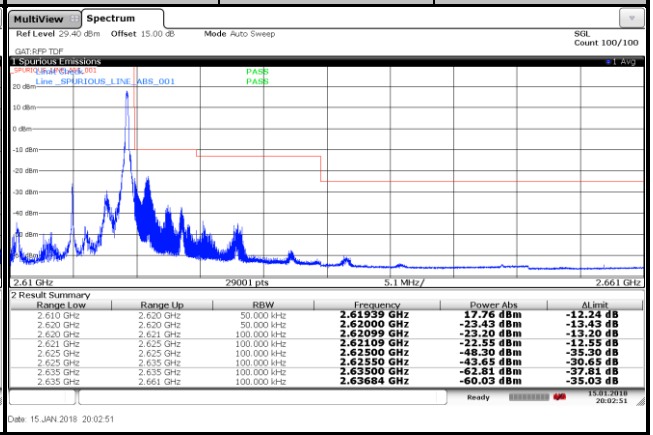


Channel	38200	50 RB

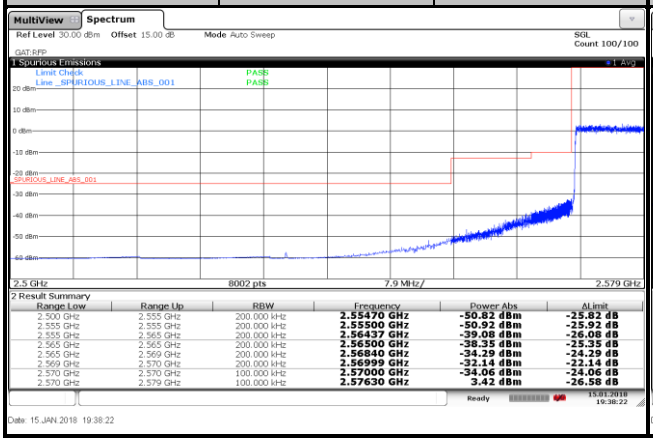


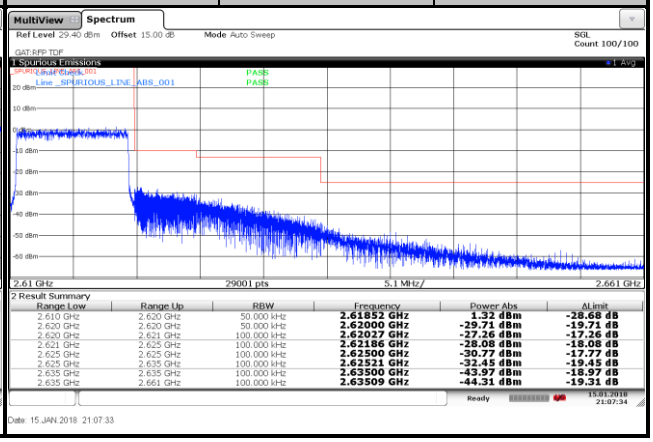
LTE Band 38					
Channel Bandwidth: 10 MHz / 16QAM					
<Out-of-Band Emissions>					
Channel	37800	1 RB	Channel	38200	1 RB





Channel	37800	50 RB	Channel	38200	50 RB



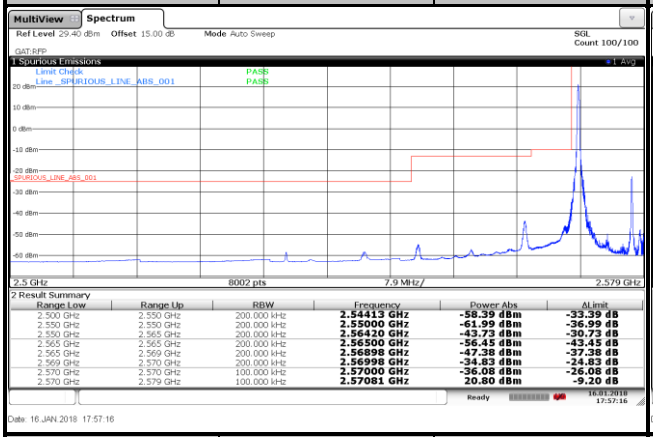


LTE Band 38

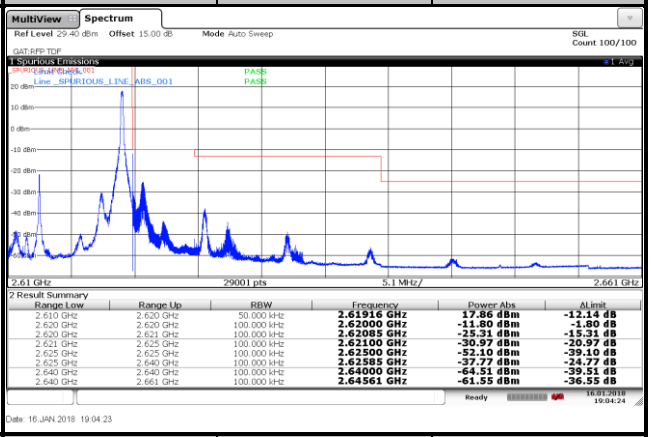
Channel Bandwidth: 15 MHz / QPSK

<Out-of-Band Emissions>

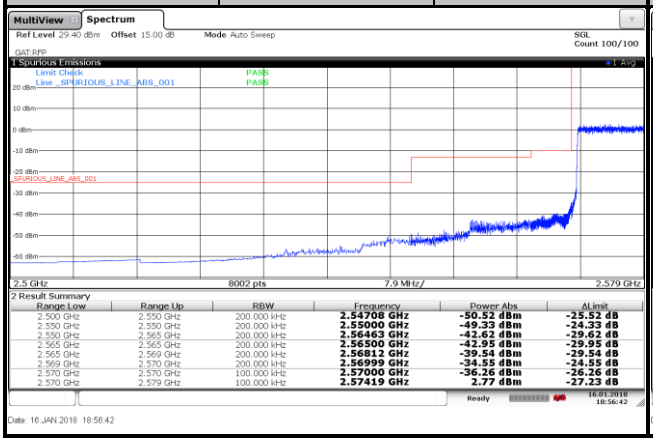
Channel	37825	1 RB



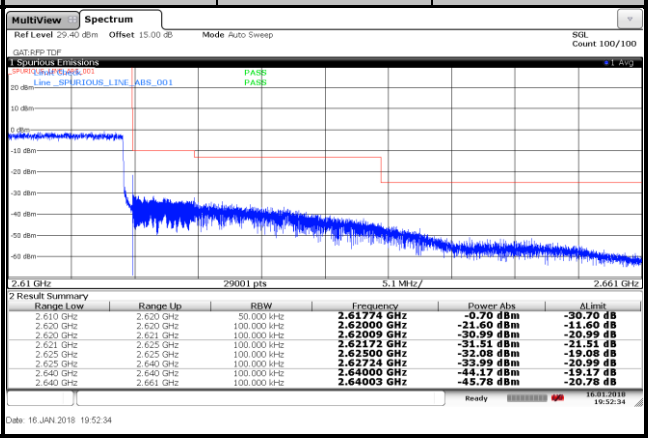
Channel	38175	1 RB



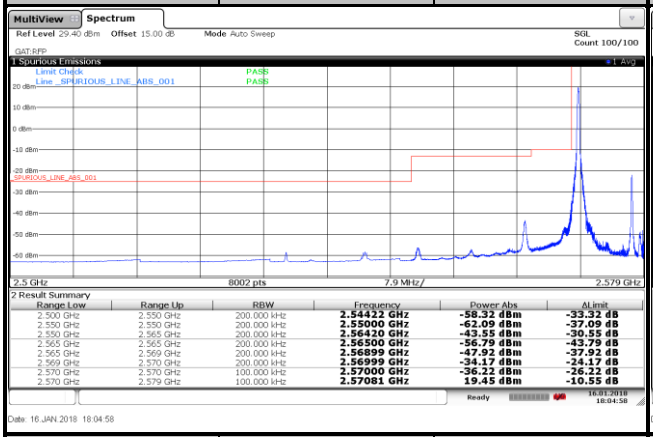
Channel	37825	75 RB

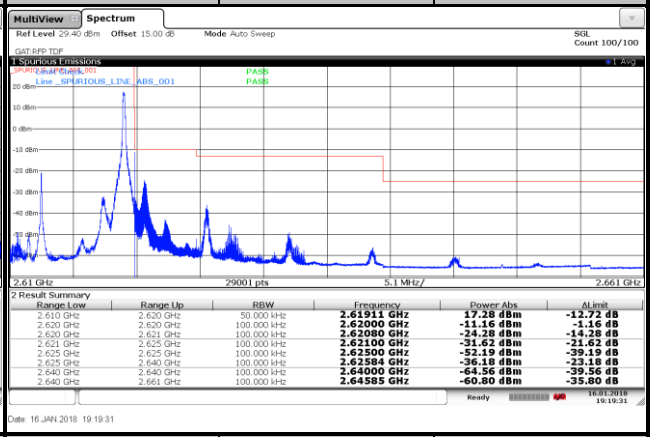


Channel	38175	75 RB

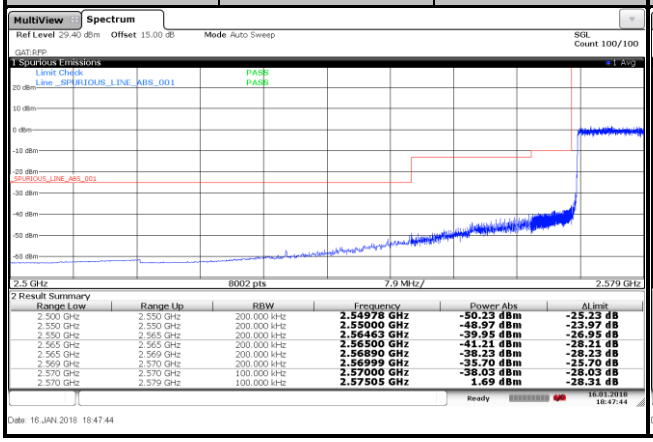


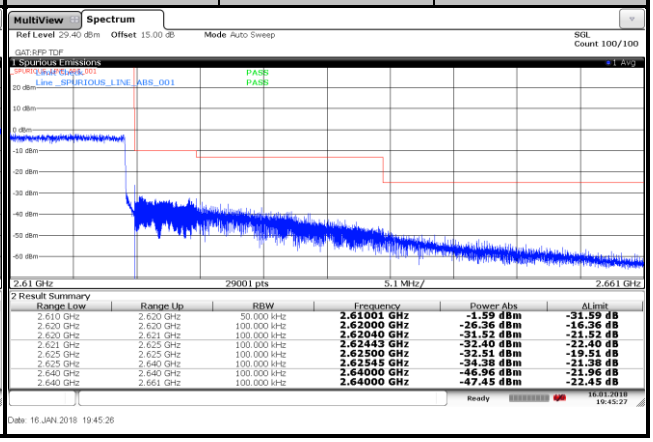
LTE Band 38					
Channel Bandwidth: 15 MHz / 16QAM					
<Out-of-Band Emissions>					
Channel	37825	1 RB	Channel	38175	1 RB



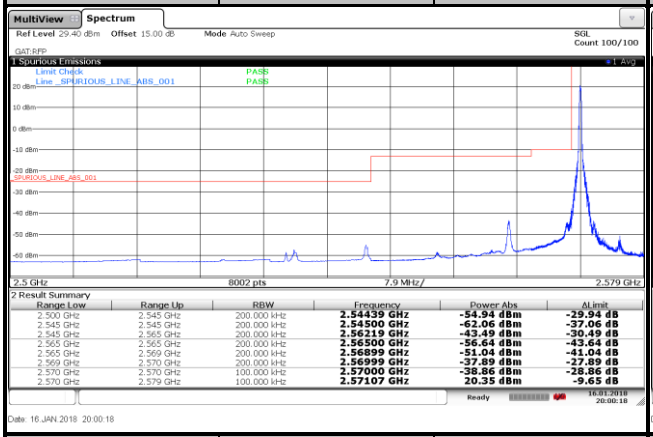


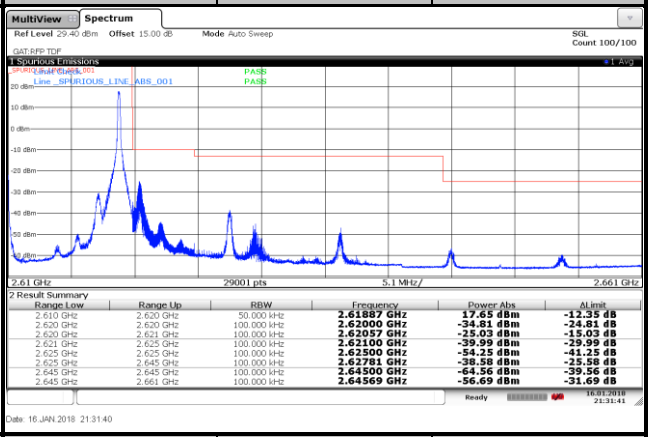
Channel	37825	75 RB	Channel	38175	75 RB



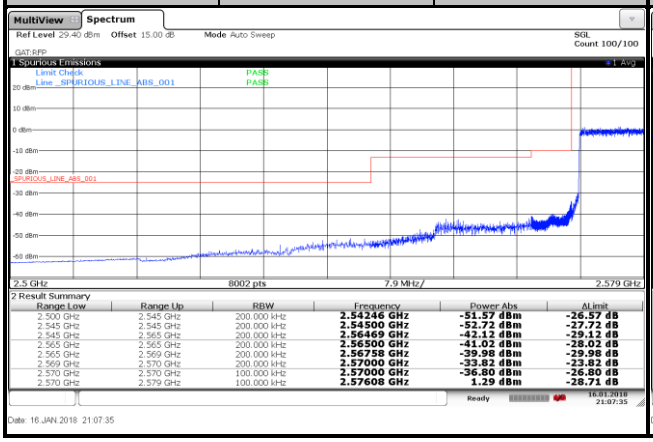


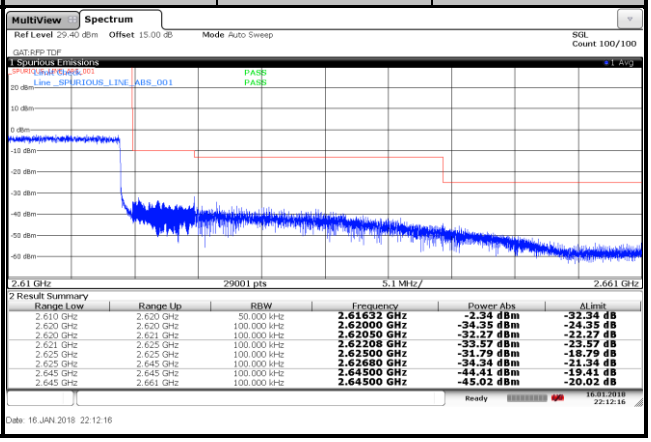
LTE Band 38					
Channel Bandwidth: 20 MHz / QPSK					
<Out-of-Band Emissions>					
Channel	37850	1 RB	Channel	38150	1 RB



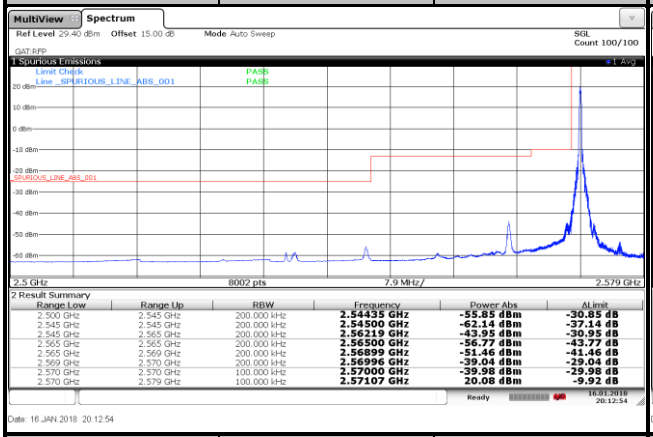


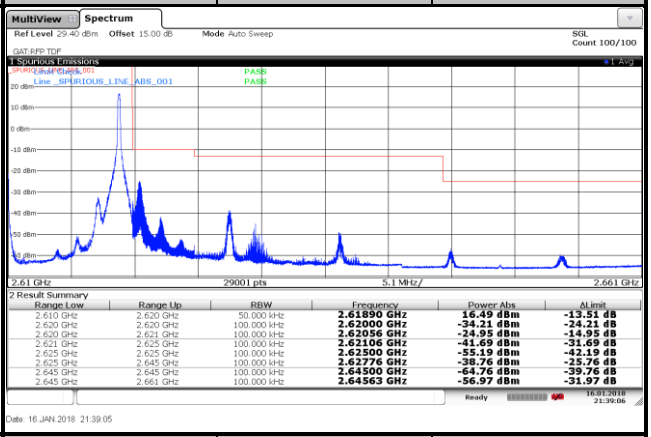
Channel	37850	100 RB	Channel	38150	100 RB



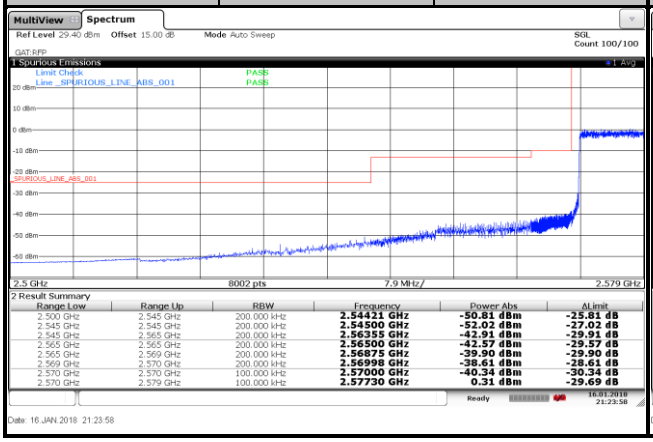


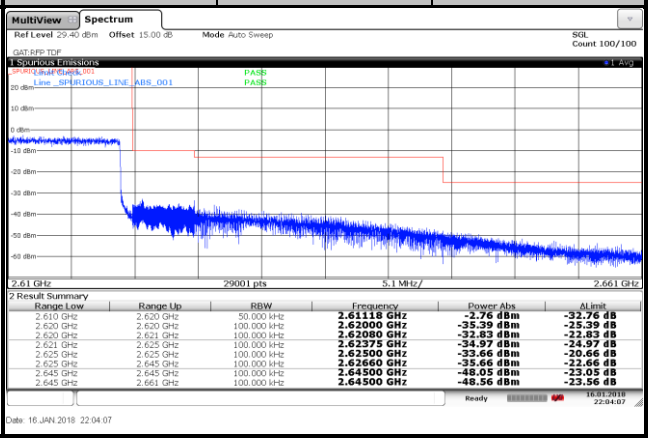
LTE Band 38					
Channel Bandwidth: 20 MHz / 16QAM					
<Out-of-Band Emissions>					
Channel	37850	1 RB	Channel	38150	1 RB

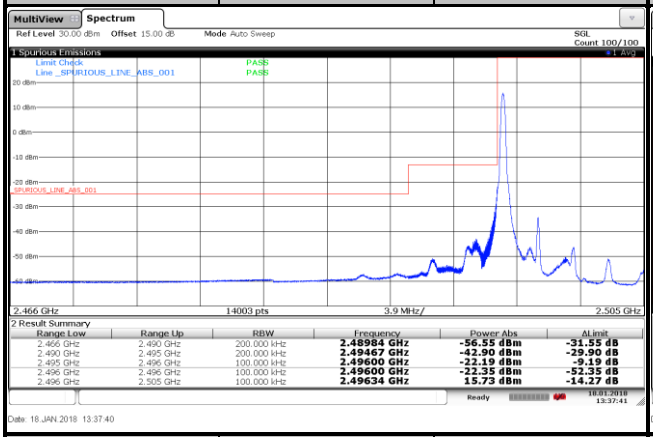
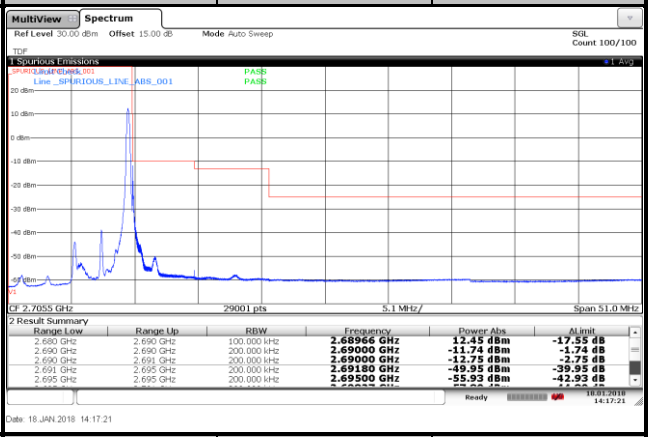




Channel	37850	100 RB	Channel	38150	100 RB





LTE Band 41					
Channel Bandwidth: 5 MHz / QPSK					
<Out-of-Band Emissions>					
Channel	39675	1 RB	Channel	41565	1 RB
					
Channel	39675	25 RB	Channel	41565	25 RB